City and County of San Francisco
Department of City Planning

299 SECOND STREET OFFICE BUILDING Draft Supplemental Environmental Impact Report

83.311E

Draft SEIR Publication Date: January 5, 1990
Draft SEIR Public Hearing Date: February 8, 1990
Draft SEIR Public Comment Period: January 5 to February 19, 1990

Written comments should be sent to
The Environmental Review Officer
450 McAllister Street, Sixth Floor
San Francisco, CA 94102

DATE: January 5, 1990

TO: Distribution List for the 299 Second Street Project Draft Supplemental EIR

FROM: Barbara W. Sahm, Environmental Review Officer

SUBJECT: Request for the Final Supplemental Environmental Impact Report for the 299 Second Street Project

This is the Draft of the Supplemental Environmental Impact Report (SEIR) for the 299 Second Street project. A public hearing will be held on the adequacy and accuracy of this document on February 8, 1990. After the public hearing, our office will prepare and publish a document entitled "Summary of Comments and Responses" which will contain a summary of all relevant comments on this Draft Supplemental EIR and our responses to those comments. It may also specify changes to this Draft Supplemental EIR. Those who testify at the hearing on the draft will automatically receive a copy of the Comments and Responses document along with a notice of the date reserved for certification (usually about nine weeks after the hearing on the draft); others may receive such copies and notice on request or by visiting our office. This Draft Supplemental EIR, together with the Summary of Comments and Responses document, will be considered by the City Planning Commission in an advertised public meeting and certified as a Final Supplemental EIR if deemed adequate.

After certification, we will modify the Draft Supplemental EIR as specified by the Comments and Responses document and print both documents in a single publication called the Final Supplemental Environmental Impact Report. The Final Supplemental EIR will add no new information to the combination of the two documents except to reproduce the certification resolution. It will simply provide the information in one rather than two documents. Therefore, if you receive a copy of the Comments and Responses document, you will technically have a copy of the Final Supplemental EIR.

We are aware that many people who receive the Draft Supplemental EIR and Comments and Responses have no interest in receiving virtually the same information after the EIR has been certified. To avoid expending money and paper needlessly, we would like to send copies of the Final Supplemental EIR to private individuals only if they request them.

If you want a copy of the Final Supplemental EIR, please so indicate in the space provided on the next page and mail the request to the Office of Environmental Review within two weeks after certification of the EIR. Any private party not requesting a Final Supplemental EIR by that time will not be mailed a copy. Public agencies on the distribution list will automatically receive a copy of the Final Supplemental EIR.

Thank you for your interest in this project.

PLACE
POSTAGE
HERE

Department of City Planning
Office of Environmental Review
450 McAllister Street, 6th Floor
San Francisco, CA 94102

Attn: Carol Roos, EIR Coordinator
83.311 - 299 Second Street Project

PLEASE CUT ALONG DOTTED LINE

RETURN REQUEST REQUIRED FOR FINAL SUPPLEMENTAL
ENVIRONMENTAL IMPACT REPORT

REQUEST FOR FINAL ENVIRONMENTAL IMPACT REPORT

TO: Department of City Planning,
Office of Environmental Review

Please send me a copy of the Final SEIR.

Signed: _____

Print Your Name and Address Below

_____

City and County of San Francisco
Department of City Planning

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299 Second Street office building : draft 1990.

299 SECOND STREET
DRAFT SUPPLEMENTAL EIR

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I. INTRODUCTION

A Final EIR was prepared for the 299 Second Street project and certified by the City Planning Commission in 1986. That EIR included cumulative analyses based on the information in the Downtown Plan EIR. The Downtown Plan EIR, certified in 1984 (EE81.3), analyzed impacts of downtown space and employment growth under various development controls, in relation to city-wide and regional growth.

Since certification of the Downtown Plan EIR and the project EIR, new information has become available about cumulative impacts of downtown growth. This new information has been published in the Mission Bay Draft EIR and the South of Market Plan Draft EIR. The Mission Bay EIR covers the impacts of potential development in a 300-acre area just south of the greater downtown, from Townsend St. to 16th St., east of the I-280 freeway. The South of Market Plan EIR analyzes impacts of development under the proposed South of Market Plan development controls and alternatives in the area generally south of Mission St. to the Mission Bay planning area and east of U.S. 101 to the Rincon Hill area east of Second St.

The new information in these two area-wide EIRs includes revised estimates of employment growth for the Downtown & Vicinity, including Mission Bay, and for the rest of the City; revised analysis and conclusions of the overall cumulative transportation picture in the future; and new cumulative air quality information including revised emissions factors for analysis of transportation-related air quality impacts. (As used in this SEIR, the term "the Downtown & Vicinity" means the C-3 District and the areas around it: South of Market, Mission Bay, South Van Ness, Civic Center, and the northeastern Waterfront. See Mission Bay EIR, Vol. II, pp. IV.4-5. This area is also occasionally called the Greater Downtown in this project SEIR.

This supplement to the 299 Second Street Project EIR provides the new cumulative data and information. It replaces summaries of the Downtown Plan EIR cumulative impact information with a summary of the results from the Mission Bay and South of Market EIRs where those results are new and different from the Downtown Plan EIR. Because the proposed project is in the Downtown planning area (the C-3 District), while the new information is from EIRs on adjacent planning areas, this project EIR cannot use tiering as defined in CEQA Sections 21093 and 21094 to include the new

cumulative analysis results. Instead, incorporation by reference with a summary is used pursuant to CEQA Sections 21061 and 21100, (see also State CEQA Guidelines Sections 15150). The documents, incorporated by reference, are available for public review at the Office of Environmental Review, 450 McAllister Street, Sixth Floor, San Francisco. For topics discussed where the Downtown Plan EIR remains current, the tiering process remains applicable when used.

New project-specific information is also included in this Supplement. For example, buildings under construction and proposed near the project site have changed since the project EIR was certified, and this Supplement includes revised discussions of land use, urban design, and shadow and wind impacts to reflect those changes. There are also an added cultural resources section and revised population and employment discussions. The Supplement also describes two project alternatives, one of which is now the preferred alternative of the current project sponsor (580 Folsom Associates), that would have similar or reduced impacts compared to those of the project analyzed in the 1986 Final EIR.

The revisions and discussion throughout this document refer to the "project," which is the project analyzed in the FEIR, except as otherwise noted. The Alternatives Chapter contains analyses of Alternative Seven including Sub-Alternative Seven A. Alternative Seven A is currently project sponsor's preferred alternative.

II. SUMMARY

A. PROJECT DESCRIPTION

The 299 Second Street Office Project, as analyzed in the FEIR, would be a 17-story (including the mechanical level at the roof) office and retail building located on Lots 27, 29 and 35 of Assessor's Block 3736. The 30,875-sq.-ft. site is developed with a three-story concrete office building on the southeastern portion of the site, a two-story wood-frame retail and office building on the southwestern portion of the lot, and a surface parking lot on the northern portion of the site. Both buildings would be demolished for the project. The project would be about 230 ft. tall with 329,075 gross sq. ft., including parking, mechanical and other unoccupied floor area. The building would incorporate about 105,000 sq. ft. of transferred development rights (TDR) from as-yet unidentified sites. The FAR would be 9.4:1.

The project sponsor would request project authorization from the City Planning Commission pursuant to Sections 320-324 of the City Planning Code whereby the project would be evaluated and compared to other proposed projects.

(The project description has not changed from the Final EIR. Alternative Seven, including Sub-Alternative Seven A, described on pp. 8-9 and 79-85 of this document, is a project alternative that would be 17 stories tall and total about 260,000 sq. ft. of office space, compared to about 267,800 sq. ft. for the FEIR project. Alternative Seven A is the preferred alternative of 580 Folsom Associates, the current project sponsor. Alternative Seven would have a FAR of about 8.4:1 and would require about 74,750 sq. ft. of transferred development rights. Alternative Seven A would have a FAR of about 9.3:1 and would require about 102,750 sq. ft. of transferred development rights.) Alternative Seven would have one basement level of parking, and Alternative Seven A would have two basement levels of parking.

B. ENVIRONMENTAL SETTING AND EFFECTS

The following text in the FEIR Summary Chapter is revised as noted to reflect updated discussions in this document:

LAND USE AND ZONING

This document includes a revision to the land use setting to account for changes in the status of other projects under construction, approved and under review in the project vicinity.

The following paragraph is added after the first paragraph under 2. Land Use and Zoning, FEIR p. 2:

> Forecasts in the Mission Bay EIR show about 94,459,000 to 94,884,000 gross sq. ft. of occupied office space in the Downtown & Vicinity in the year 2000. The range is based on different amounts of office space in Mission Bay, depending on the development program approved and built. This is an increase of about 25,000,000-26,000,000 gross sq. ft. over the amount existing in 1985. The forecast accounts for demolition and new construction and for conversion of existing buildings from non-office to office uses in the future. It also accounts for absorption of several million sq. ft. of office space vacant in 1985 and another several million approved or under construction as of 1985. About 75% of the office space would be in the C-3 District. The proposed project would contribute about one-quarter of one percent of the total future amount of office space in the Downtown & Vicinity.

URBAN DESIGN AND VISUAL QUALITY

This document describes changes in photomontages in FEIR Figures 17, 18 and 19 to account for changes in the status of other projects under construction, approved, under review, or no longer under review in the project vicinity. This document also includes a revised FEIR Figure 20, View of Project from Potrero Hill, and adds a new Figure 20a, View of Project from Twin Peaks.

SHADOW AND WIND

This document includes a discussion of shadows on open space and Proposition K, the sunlight ordinance and describes changes in the FEIR for existing and projected wind conditions in the project area.

CULTURAL RESOURCES

The following is added as a new second paragraph under: 5. Architectural and Historical Resources, in FEIR p. 3:

While earlier archival research produced no evidence to suggest that noteworthy prehistoric materials may exist under the site, recent discoveries of prehistoric shellmounds in subsurface locations at 49 Stevenson Street, about three blocks north of the project site, at Yerba Buena Center (YBC), about two blocks northwest of the project site, and at other South of Market locations suggest that other deeply buried prehistoric sites may exist in the project vicinity, even in places subject to previous grading.

TRANSPORTATION

The entire Transportation Summary, FEIR pp. 3-4, is replaced with the following:

The project would generate about 6,185 net new person trips per day. About 850 new outbound trips would occur during the p.m. peak period and about 515 of these during the p.m. peak hour.

The project would remove 82 existing parking spaces on two lots and would provide about 45,735 gsf for parking, which the Department of City Planning estimates could accommodate 213 vehicles with tandem valet operations, in the new building. Estimated equivalent daily parking demand from the project would be about 156 spaces, and the project would eliminate 28 existing parking spaces available to the general public, resulting in an excess parking capacity of 29 equivalent daily spaces beyond the estimated total parking demand. Due to use of space above the seven percent allowance to be used for short term parking, this project would result in an unmet demand for long term parking.

The proposed project would generate about 745 new pedestrian trips on the adjacent sidewalks during the noon peak hour and about 500 new pedestrian trips during the p.m. peak hour. Sidewalk operations, currently in the open or unimpeded ranges at locations adjacent to the project site during both the noon hour and p.m. peak hour, would worsen with the addition of anticipated pedestrian trips from the project. Levels of service would change from open to unimpeded in two locations.

The project would add about 120 outbound trips to Muni, 134 trips to BART, and 97 outbound trips to other transit carriers during the p.m. peak hour in the year 2000. The project would generate an annual cost deficit to Muni of about $28,400 which would be less than its contributions to the General Fund, the Transit Impact Development Fee, and sales tax revenues. The project would result in an annual net operating deficit to BART of about $190,800. BART's operating deficit per passenger is likely to decline in real terms as planned service improvements become operational in the future.

Sidewalk detours and curb lane closures on the Folsom, Second and Clementina Sts. frontages would be necessary during project construction. Construction truck traffic would be limited to the period between 9:00 a.m. and 3:30 p.m.

With cumulative development by the year 2000, sidewalk and crosswalk operations would remain in the unimpeded and impeded range for all locations studied.

Cumulative development, including that from the proposed project, by the year 2000 would be expected to further exacerbate the existing peak-hour traffic Level of Service (LOS) "E/F" conditions at the intersection of First/Folsom Streets to LOS "F" and worsen existing LOS "A" conditions at the intersections of Second/Folsom and Second/Howard Streets to LOS "B".

The Mission Bay and South of Market Area EIRs address transportation impacts in 2000 and 2020. Both EIRs show that by 2000, congested highway conditions would result in a shift from autos to higher use of transit and ridesharing by travelers from the Downtown & Vicinity. The East Bay would be the most congested corridor, the Peninsula would be the least. By 2020, travel demand would exceed the capacity of regional transportation systems. To serve regional growth, expanded transit and freeway systems would be required.

Regional travel was analyzed for each of the three major approaches to San Francisco; the North Bay via the Golden Gate Bridge; the East Bay via the San Francisco-Oakland Bay Bridge; and the Peninsula via the U.S. 101 and I-280 freeways. The analysis for 2000 is based on comparing the projected demand for transportation system capacities developed for 2000 as a base and identifies additional capacity above the 2000 level that would be needed to serve the travel demands of 2020.

Growth in the entire Downtown & Vicinity and the rest of the region, rather than growth in South of Market of Mission Bay alone, would be the primary source of travelers trying to cross the Golden Gate and Bay Bridges, and to use the U.S. 101 and I-280 freeways at peak hours.

To analyze cumulative impacts on Muni, individual Muni routes were grouped on the basis of the location of their alignments and stops into the "Northeast," "Northwest," "Southwest," and "Southeast" areas of San Francisco, referred to as "screenlines." By 2000, ridership would generally be accommodated on the Muni screenlines. Overcrowding would occur on the Northwest screenline during the p.m. peak hour, and on the Northeast screenline during the p.m. peak period. However, by 2020, all but the Southwest screenline would be operating beyond Muni's load standard. Additional service required could include new light rail service to the Geary Boulevard corridor to the Northwest, and to the Bayshore corridor in the Southeast area of the City.

The transit demand from the project would represent about 0.4% of the total transit demand in the year 2000. Golden Gate Transit would be expected to meet increases in demand. AC Transit loads would increase from 0.85 passengers per seat in 1985 to 1.3 by 2000. Crowding projected for east bay BART service could not be fully mitigated during the peak periods. Peninsula BART and SamTrans would grow by about 40%. Caltrain would grow by about four percent.

AIR QUALITY

The Air Quality Summary text, FEIR p. 4, is replaced with the following text:

Project-related vehicular traffic would add to cumulative regional pollutant emissions. Project-related traffic would contribute about one percent of total incremental emissions resulting from Downtown & Vicinity projected in the Mission Bay EIR. Emissions of particulates generated by the project and cumulative development would increase particulate concentrations, which would increase the frequency of fine particulate matter standards (PM_{10}) violations in San Francisco, with concomitant health effects and reduced visibility.

Project emissions alone would not cause any standards to be violated, and local CO concentrations are predicted to be less in 2000 than in 1985, because the effects of emission controls on new vehicles would offset increases in traffic volumes and congestion.

CONSTRUCTION NOISE

This document includes an alteration to the description of construction noise impacts in the FEIR to account for changes in the status of other projects under construction, approved and under review in the project vicinity.

POPULATION AND EMPLOYMENT

The following Population and Employment Summary is added after the existing text under 10. Employment and Housing Summary, FEIR p. 5. (Project effects are not changed from the FEIR.)

Regardless of the type of development in Mission Bay and in South of Market, the importance of San Francisco employment as a factor affecting regional housing demand will decline over time because more housing will be added in the City relative to job growth, compared to the situation in the past. As housing and the labor force continue to grow more rapidly outside San Francisco, people working in San Francisco will represent the same or a smaller percentage of the employed people living elsewhere in the region. San Francisco workers will require about the same share of the region's housing in the future as they did in the early 1980's. San Francisco's effects on the regional housing market will vary in the future. City workers could become more important to the housing market in some close-in communities in western parts of the East Bay and east of the hills along BART corridors, in northern San Mateo County and parts of Marin.

About half of the people working in the Downtown & Vicinity would live in the City in 2000 and 2020. The rest would live in communities throughout the rest of the region: about 30% in the East Bay, 13% in the Peninsula and in the South Bay and about 8% in the North Bay. Downtown & Vicinity workers living in the City would represent about 57% of the City's employed residents. People working downtown would represent a considerably smaller proportion (about 4-9%) of the employed residents of other Bay Area communities.

SEISMICITY

The following section of seismic effects is added to FEIR p. 5 of the summary before C. Mitigation Measures:

12. Seismicity

The Downtown & Vicinity, like other parts of San Francisco and the Bay Area, is subject to potentially large earthquakes from the San Andreas and Hayward faults. Employment growth, such as that expected for 299 Second St., would result in large numbers of persons being exposed in the future to earthquake hazards if an event occurred during the day. Since new buildings are subject to more stringent building and structural standards than are older buildings, persons working in buildings such as the proposed project would be relatively safer than those in some older buildings.

C. MITIGATION MEASURES

The Mitigation Measures chapter of this document includes additions to the Transportation measures which could be implemented by public agencies which account for new mitigation measures discussed in the Mission Bay Draft EIR. Mitigation measures for cultural resources, some transportation, air quality, noise, and geology/topography have been replaced with similar, more current measures of the City Planning Commission with respect to such measures.

D. ALTERNATIVES

The following is added to the end of FEIR p. 9:

5. Alternative Seven: Second Street Open Space, One Parking Level.

This alternative would include 260,000 sq. ft. of office space; 18,300 sq. ft. of retail space on the ground-floor; about 5,600 sq. ft. of open space fronting Second Street (about 5,600 sq. ft. would be required); and about 18,200 sq. ft. of parking, which the Department of City Planning estimates could accommodate about 85 spaces with tandem valet operations, in one basement level. This would be compared to 267,800 sq. ft. of office, 15,600 sq. ft. of retail, 6,435 sq. ft. of rooftop and greenhouse open space and 213 tandem valet parking spaces for the project. There would be two full-size and four van-size freight loading spaces. This alternative would include about 74,750 sq. ft. of TDR, compared to about 105,000 sq. ft. with the project. The FAR would be about 8.4:1, compared to 9.4:1 for the project. Alternative Seven would be about 240 ft. tall to the top of the upper tower extension, about the same as for the proposed project. This alternative would require an exception from the upper tower bulk limits, but would meet all other City Planning Code requirements for height, floor size, setbacks, maximum diagonal dimension and building length. It would also require a Section 309 exception to allow exceedences of the 11 mph pedestrian comfort criterion at four locations compared to six locations for the project. Open space would be provided in a landscaped plaza fronting Second St., with the office tower set back about 60 ft. from the street.

Analyzed with existing buildings, new shadow from the alternative would reach the East Garden of Yerba Buena Gardens before about 7:15 a.m. between about April 15 and April 30, and between about August 12 and August 27. The duration of the shadow, beginning at one hour after sunrise, would be less than ten minutes on these dates. The new shadow would be cast by the spire of this alternative. Shadow from the alternative would not reach open space on Yerba Buena Gardens at other times of the day or other months of the year. Shadow analysis for Alternative Seven indicates that all new shadow cast by the project would fall within the shadow cast by any building over 65 ft. in height at the lot lines of the museum building site on Yerba Buena East Block 2 (located along Third Street between Howard and Folsom Sts.), or 55 ft. for the office or residential site, to the south of the Museum site, on the block. Therefore, with development of future projects proposed for East Block 2, no new shadow from the alternative would be cast on any proposed open space of Yerba Buena Gardens.

Winds within sidewalk areas would exceed the 11 mph comfort criterion for pedestrian areas at four locations compared to six locations with the project. The open space within this alternative would satisfy the seven mph comfort criterion for sitting areas.

This alternative would generate about one percent more automobile and transit trips than the project due to greater retail area. Similarly, peak-hour vehicle-trip-ends, related to office uses, would be about two percent less with this alternative. The alternative's effects on intersection operation near the project site would be about the same as those of the project. The equivalent daily parking demand would be for about 156 spaces, about the same as with the project. The unmet demand with this alternative would be for 99 spaces, while the project would have 29 more spaces than total demand. The loading demand from this alternative would average 3.0 spaces per hour, the same as with the project.

Architectural and historic resources, energy consumption, and air quality effects would be about the same as with the project. The construction period would be about the same, so that construction noise effects would be generally the same as reported for the project. Potential effects on cultural resources could be less than with the project as there would be less excavation for one subsurface basement level, compared to two levels for the project.

6. Alternative Seven A: Second Street Open Space, Two Parking Levels

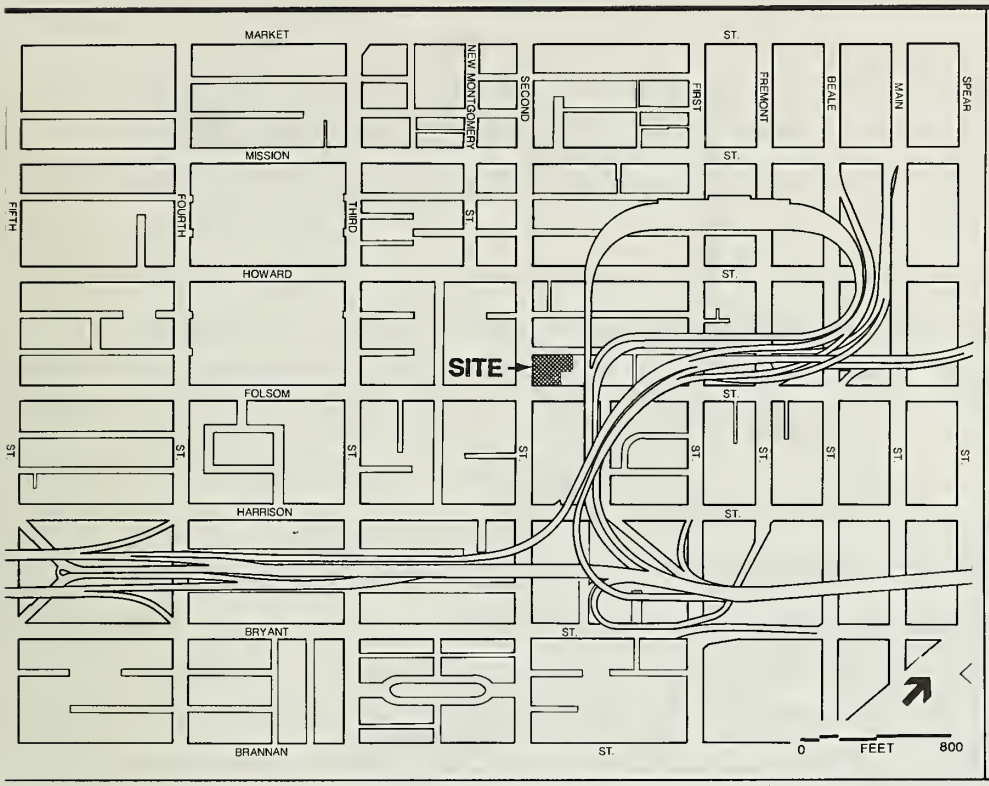
This alternative would be identical to Alternative Seven except that there would be two levels of subsurface parking, totalling 46,200 gross square feet, instead of one level. This alternative would include about 102,750 sq. ft. of TDR, as compared to about 74,750 sq. ft. for Alternative Seven and 105,000 sq. ft. for the project. The FAR would be about 9.3:1, as compared to about 8.4:1 for Alternative Seven and 9.4:1 for the project. This alternative would have about the same amount of parking as would the project and would provide more spaces than necessary to meet the total parking demand. However, like the project, this alternative would result in an unmet demand for long term parking.

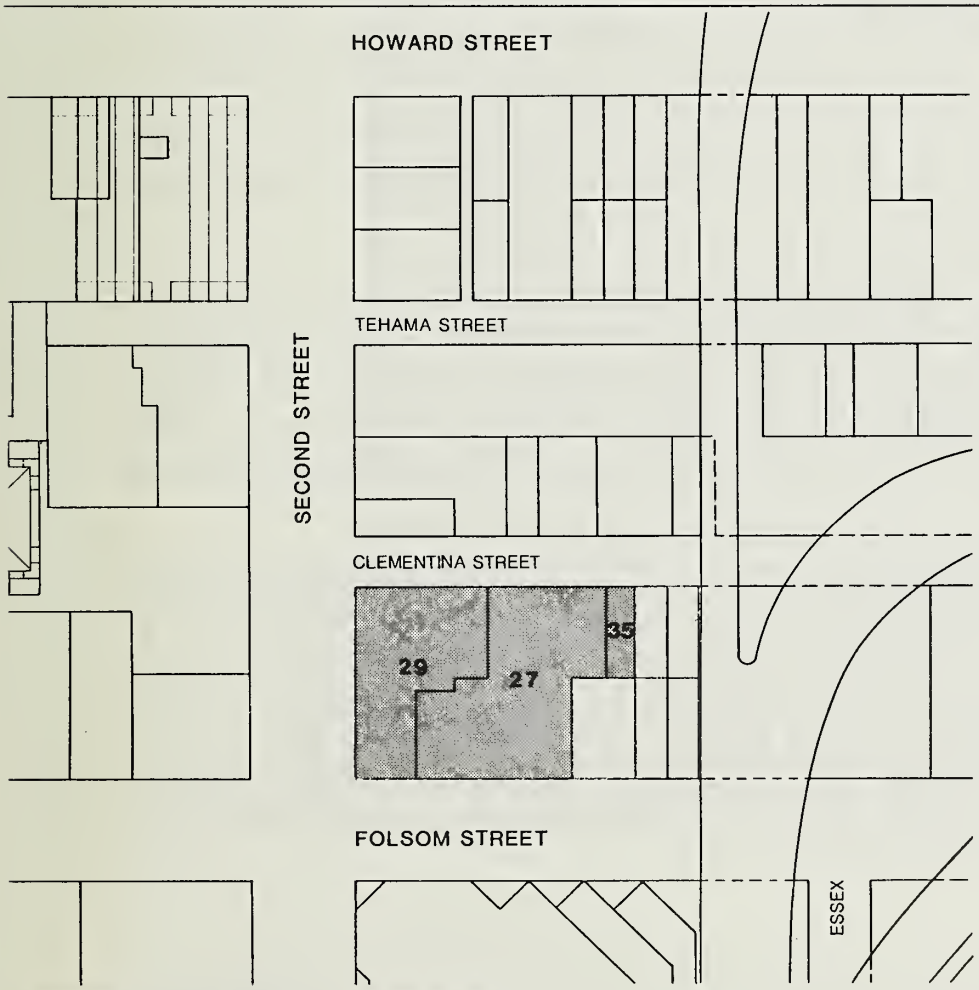
Impacts of this alternative would be identical to impacts of Alternative Seven except that there would be more vehicle trips from the project site resulting in more traffic impacts at the project location, and there would be greater potential to discover cultural remains due to deeper subsurface excavation. The traffic and potential cultural resource effects of this alternative would be about the same as for the FEIR project.

III. PROJECT DESCRIPTION

The project site is on the northeast corner of Second and Folsom Sts, Lots 27, 29 and 35 of Assessor's Block 3736 (see Figure S-1). Clementina St. borders the site to the north. The site is three blocks south of Market St. on the Second Street corridor. The 30,875-sq.-ft. site is developed with a three-story concrete office building (the southern part of Lot 27), a two-story wood-frame building with offices above a ground-floor restaurant (the southern portion of Lot 29), a surface parking lot striped for about 52 long-term spaces (the northern portion of Lot 29), and a second surface parking lot striped for about 30 long-term spaces (Lot 35 and the northern portion of Lot 27). The two buildings would be demolished for the project and the parking lots eliminated. The site is in the C-3-0 (SD) (Downtown Office Special Development) Use District, in which the basic allowable Floor Area Ratio (FAR) is 6:1. It is in the 200-S Height and Bulk District, in which the maximum height is 200 feet. Additional height is permitted for upper tower extensions and mechanical uses. The "S" zone divides buildings into three sections: the base, lower tower and upper tower. The "S" designation is intended to result in slender, stepped buildings with varied rooflines.

The project would be a 17-story (including the roof-top mechanical level), approximately 230-ft. tall building (including the mechanical roof level) with about 329,075 gross sq. ft., including primary uses as well as parking, mechanical and other unoccupied floor area (see Figure S-2, p. 12). The building would incorporate about 105,000 sq. ft. of transferred development rights from as-yet unidentified sites. The ground floor level would contain an approximately 5,600 sq. ft. restaurant and about 10,000 sq. ft. of other retail uses. The project would contain about 267,800 sq. ft. of office area on floors 2 through 16. The top floor would be a peaked-roof mechanical penthouse level, and the two-level basement would contain about 45,735 gross square feet of parking, which the Department of City Planning estimates could accommodate about 213 vehicles with tandem valet operations. Three ground-floor full-size freight loading spaces, two van-size loading spaces and the parking garage would be accessed from Clementina St.





LEGEND

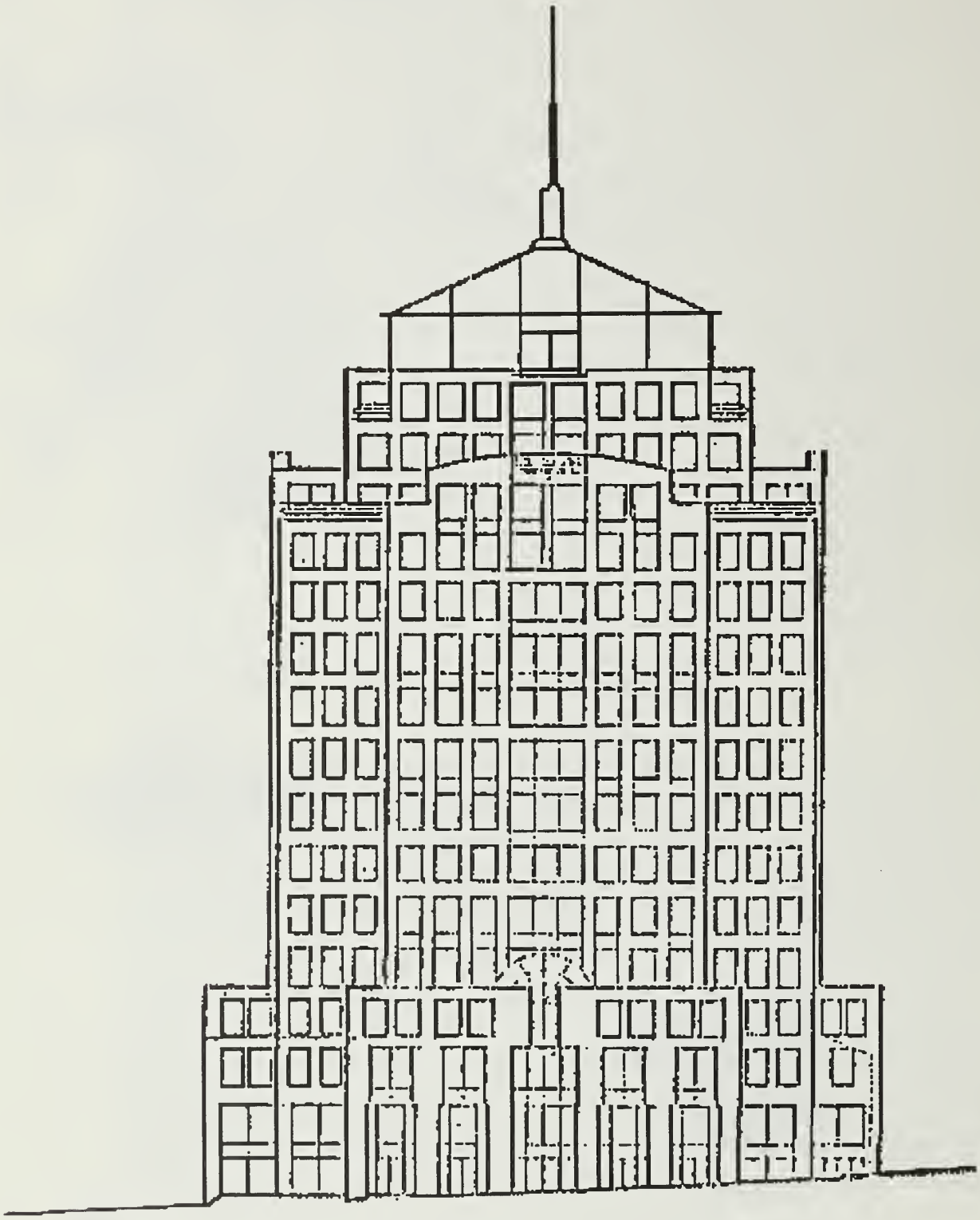
PROJECT SITE
Assessor's Block 3736
Lots 27, 29 & 35

0 FEET 200

299 SECOND STREET

FIGURE S-1
PROJECT LOCATION

SOURCE: Environmental Science Associates, Inc.



299 SECOND STREET

FIGURE S-2
SECOND STREET ELEVATION

SOURCE: Kaplan, McLaughlin & Diaz

There would be about 6,400 sq. ft. of open space. A greenhouse with seating would be accessible from Folsom Street at the site's southeast corner. Access to the building on the Second Street side would feature open space and landscaping.

Under Section 309 of the City Planning Code the City Planning Commission would evaluate artwork (Section 149) and open space (Section 138). The project sponsor would request project authorization from the City Planning Commission pursuant to Sections 320-324 of the City Planning Code, whereby the project would be evaluated and compared to other proposed projects.

The project would require exceptions under Section 309 of the City Planning Code to exceed the bulk requirements (pursuant to exception provisions in Section 272) for a separation of towers exception (pursuant to exception provisions in Section 132) and for exceedences of the wind comfort criteria (pursuant to Section 148). The project would require Conditional Use authorization (pursuant to Section 303) to exceed the permitted parking allowance of seven percent of the total gross floor area (pursuant to Section 204.5(c)). The sponsor intends to use all parking in excess of the seven percent allowance exclusively for public short-term or for the short-term parking needs of vehicle fleets owned by project occupants.

The project sponsor anticipates completion of the final project design by late 1989. Construction would commence once permits were issued. The project would take approximately 18 months to complete. Occupancy would be expected to commence by 1992, with final project occupancy completed sometime after late-1992. The project sponsor estimates construction costs of $25 million.

(Alternative Seven: Second Street Open Space, One Parking Level and Sub-Alternative Seven A: Second Street Open Space, Two Parking Levels described on pp. 8-9 and 79-85 of this document, are project alternatives that would each be 17 stories tall and total about 260,000 sq. ft. of office space, compared to 17 stories tall and about 267,800 sq. ft. of office for the proposed project. Alternative Seven A is the project sponsor's preferred alternative.

A. LAND USE AND ZONING

The first sentence of the second paragraph on FEIR p. 21 is revised as follows to update the status of the Rincon Hill Plan (deleted language is shown in brackets):

> The project site is located on the periphery of the downtown business district in the South of Market area, about two blocks east of the [proposed] Yerba Buena Center (YBC) Redevelopment Area, and approximately one block west of the Rincon Hill Plan [boundary] area.

The following replaces the first sentence, last partial paragraph on FEIR p. 21, to update the information on land uses in the vicinity:

> Through conversion and new construction, the site area which has historically supported printing, wholesaling and light-industrial uses, is becoming increasingly office oriented with more office and office support uses, although examples of the original use types remain. The area differs from the Financial District in density, diversity of use and scale of development. The area contains a number of surface parking lots.
>
> Located in the vicinity of the project are the sites of office buildings recently completed, under construction or approved. These include: 71 Stevenson, 49 Stevenson, 100 First Street, 90 New Montgomery Street, and 455 Market Street, all recently completed developments north of Mission Street. The 75 Hawthorne Street and Marathon Plaza buildings were recently completed south of Howard Street. In addition, the 222 Second Street (one-half block away), 101 Second Street (one and one-half blocks away), and 524 Howard Street office developments have been approved by the City Planning Commission.

The second sentence of the last partial paragraph on FEIR p. 21 is revised as follows to update information on the status of the Marathon building:

> South of the site across Folsom Street is the Marathon Plaza building, completed in 1988.

The last two sentences of the first partial paragraph on FEIR p. 24 are replaced as follows to update information on the status of developments in the area:

> One block southeast is the recently completed (1989) 600 Harrison Street office building. One block southwest of the site is St. Francis Place, a mixed-use apartment-retail-office project.

The heading and text under "3. Cumulative Downtown Office Development" on FEIR pp. 30-33 are deleted. Appendix C, Cumulative Development, pp A-31 to A-44 is also deleted as it is no longer used in the cumulative analysis and there is no longer any reference to it in the text.

B. URBAN DESIGN AND VISUAL QUALITY

The first two sentences of the fourth paragraph on FEIR p. 34 are revised to read as follows to reflect updated information on development in the project vicinity (additions are underlined):

> The Second and Folsom Street intersection contains a variety of building styles. Between Folsom and Harrison Sts., fronting the east side of Second St. is the terraced 10-story, 150-ft.-tall Marathon Plaza office building. The facade is white concrete with rust-colored awnings and with strips of blue tile ornamentation on upper stories. A triangular plaza containing a fountain, and terraced landscaping and seating areas is set back from Second St.

C. SHADOW AND WIND

The following paragraph is added after the third paragraph under Shadow, FEIR p. 38:

> Existing open spaces in the project vicinity include South Park, the 100 First Street sun terrace, Golden Gate University entry and seating area, Five Fremont open space, and the Transbay Terminal staging area. Approved but not yet constructed open spaces in the project vicinity include Yerba Buena Gardens, between Mission and Howard, west of Third Street. The 101 Second Street, 524 Howard Street, and 222 Second Street projects, approved in 1989, will include publicly accessible private open space in the form of greenhouses and arcades. City Planning Code Section 263.10 provides for the possibility of development of privately owned and maintained open space on Assessor's Block 3737.

D. ARCHITECTURAL, HISTORIC AND CULTURAL RESOURCES

The title of this Section, FEIR p. 40, is replaced with Architectural, Historic and Cultural Resources. The sections "1. Buildings of the Project Site" and "2. Significant Buildings in the Vicinity", p. 40 are combined and retitled: "1. Architectural and Historic Resouces."

The following is added before the first paragraph, FEIR, p. 40:

> In the 1976 Department of City Planning Architectural Inventory, approximately ten percent of the City's entire stock of buildings were awarded a rating for architectural merit ranging form a low of "0" to high of "5". The total number of buildings which were rated from "3" to "5" represent less than two percent of the City's entire building stock. Neither of the two buildings on the site were rated in the Department of City Planning 1976 Inventory.

The following text is added following the second paragraph, FEIR, p. 40:

> The Downtown Plan categorized historically and architecturally significant buildings into either Category I or II (significant buildings) or Category III or IV (contributory buildings). It is the intent of the Downtown Plan that those buildings categorized I, II, III or IV are to be protected. Neither of the two building on the site were designated as significant or contributory in the Downtown Plan.

The following is added as the new section titled "2. Cultural Resources" at the end of FEIR p. 40, to provide current information on cultural resources in the South of Market area:

> Recent finds in the South of Market area include three prehistoric shellmound discoveries: At 49 Stevenson St., about one-third mile north of the project site, a prehistoric shellmound (CA-SFR112) was discovered in May 1986 which dates to the late Horizon period (after 500 A.D.). The find was characterized by a wide range of obsidian projectile points, charm stones, net weights and large amounts of shellfish and fish remains as well as some mammal bones. No human remains were encountered. The bulk of the shellmound remains preserved under the 53 Stevenson St. building.
>
> The 49 Stevenson Street shellmound was covered by a large sandhill at the beginning of the Gold Rush era; a massive amount of this sandhill was cut away in the late 1850's or early 1860's. Yet, in spite of these nineteenth century topographic alterations, an extensive, largely intact and culturally rich prehistoric shellmound was encountered at a depth of 19 feet below present street grade. In addition, two other prehistoric shellmounds have been discovered within the South of Market area since the Stevenson Street shellmound was first encountered. These discoveries suggest that deeply buried prehistoric sites may exist at other places within the South of Market area, even in locations that were historically subjected to extensive grading./2/
>
> At Fifth and Market Sts., about one-half mile northwest of the project site, a prehistoric shellmound (CA-SFR113) was discovered which dates to the Middle Horizon period (between 1,000 B.C. to 500 A.D.). The find was characterized by a wide range of obsidian projectile points, net weights and large amounts of shellfish and fish remains as well as some mammal bones. No human remains were encountered. After being catalogued, the entire shellmound was destroyed as a result of the excavation for that project.

At Yerba Buena Center Central Block Two bounded by Mission, Third, Howard and Fourth Streets about one-fourth mile northwest of the project site, a prehistoric shellmound (CA-SFR-114) was discovered which dates from between 1000 A.D. to 1400 A.D. The site included a discrete cemetery that contained 11 human remains of both sexes ranging in age from about 4-6 months old to about 50-55 years old. Over 45,000 burial items were found in the cemetery. The site also contained the architectural remains of a sweathouse, and included obsidian projectile points, shellfish and fish remains./3/

The following footnotes are added after footnote /1/, FEIR p. 40:

/2/ Pastron, Allen G., Ph.D., President, Archeo-Tec, letter, October 17, 1988. This letter is on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister, San Francisco.

/3/ Pastron, Allen G., Ph.D., President, Archeo-Tec, telephone conversation, October 5, 1989.

E. TRANSPORTATION

The following replaces the first two sentences of paragraph two, FEIR p. 44:

The site is located outside the Downtown Core automobile control area designated in the Downtown Transportation Plan of the Transportation Element of the San Francisco Master Plan./1/ A Plan goal is to reduce the number of private commuter vehicles and excess automobile traffic in the downtown core. The site is located in an area designated as a Parking Belt in the Downtown Transportation Plan of the Transportation Element of the San Francisco Master Plan. Parking belts are areas that the Plan identifies as appropriate for short-term parking facilities to replace spaces removed from the core area. The site is located along one of the alternative alignments for the proposed extension of Caltrain into downtown, now under study.

Footnote 2, FEIR p. 44 is deleted because reference to this note has been deleted.

Figure 16, Existing Street Network and Transit Service, FEIR p. 43, is deleted. It is replaced by new Figure 27a, p. 46 of this document, in Chapter IV, Environmental Impacts, to provide current information on transit routes in the project vicinity. FEIR p. 42, paragraph four, first sentence which refers to Figure 16 is replaced with the following:

"Muni bus lines which operate within the project area are shown in Figure 27a, Transit Routes in the Project Area, in the Impacts Chapter."

F. AIR QUALITY

The first paragraph in Air Quality, FEIR p. 45, is replaced with the following to reflect current regional air quality monitoring data; revised sentences are underlined:

> The Bay Area Air Quality Management District (BAAQMD) operates a regional monitoring network which measures the ambient concentrations of six air pollutants: ozone (O_3), carbon monoxide (CO), particulates (both fine particulate matter [PM_{10}] and total suspended particulate [TSP]), lead (Pb), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). On the basis of the monitoring data, the Bay Area, including San Francisco, currently is designated a non-attainment area with respect to the federal ozone and CO standards. A three-year summary of the data collected at the BAAQMD monitoring station nearest the project site (about two miles south at 10 Arkansas St. and previously at 900 23rd St.) is shown in Appendix A, pp. A-52 [(pp. A.1-A.2 herein)], together with the corresponding federal and/or state ambient air quality standards. In 1988, there was one violation of the federal and state eight-hour CO standard and five violations of the state average 24-hour PM_{10} standard. In 1987 there was one violation of the federal and state eight-hour average CO standard, and, there were four violations of the state PM_{10} standards. In 1986, there were two violations of the federal and state eight-hour average CO standard and five violations of the previous state average 24-hour TSP standard.

The last full sentence in the last paragraph, FEIR p. 45 is replaced with the following (revised language is underlined):

> Data from the various "hot spot" monitoring programs indicate that locations in San Francisco near streets with high traffic volumes and congested flows may experience violations of the eight-hour CO standard under adverse meteorological conditions.

The second full paragraph, FEIR p. 46, is revised to read as follows (revised language is underlined):

> San Francisco's air quality problems, primarily CO and particulates, are due largely to pollutant emissions from within the City. CO is a non-reactive pollutant and its major source category is motor vehicles. CO concentrations are generally highest during periods of peak traffic congestion. Particulate levels are relatively low near the coast, increase with distance inland, and peak in dry, sheltered valleys. The primary sources of particulates in San Francisco are demolition and construction activities, and motor vehicle travel over paved roads.

The following footnote replaces footnote /1/ on FEIR p. 47; (revised language is underlined):

> /1/ State standards for particulate matter changed in 1983 and federal standards changed in 1987 to concentrate on fine particulate matter (PM_{10}) which has been demonstrated to have health implications when inhaled. The previous state and federal particulate standards were 100 micrograms per cubic meter (ug/m^3) and 260 ug/m^3 of particulates, respectively. The present state and federal PM_{10} standards are 50 ug/m_3 and 150 ug/m^3, respectively, of fine particulate matter. Although both the previous and present particulate standards are measured in ug/m^3, under the PM_{10} standards only those particulates 10 microns or less in size are measured. The BAAQMD (Thomas Perardi) has stated that TSP includes about 50% to 60% of particulates of 10 microns or less; thus, the TSP standards are generally equivalent to the PM_{10} standards. BAAQMD is presently monitoring PM_{10} at seven Bay Area monitoring stations, including the 16th and Arkansas station in San Francisco.

FEIR Appendix F, San Francisco Air Pollutant Summary 1979-1983, FEIR pp. A-52-A-53, is replaced with an updated table, San Francisco Air Pollutant Summary, 1986-1988, included in Appendix A of this document, pp. A.1-A.2.

G. EMPLOYMENT AND HOUSING

The Employment and Housing Setting, FEIR pp. 48-53, is deleted. Housing and employment issues are discussed in IV. Environmental Impacts, H. Population and Employment, pp. 61-65 of this document.

Following publication of the Mission Bay and South of Market Plan EIRs, Mayor Art Agnos began a formal investigation into the possibility of building a baseball stadium at Second and King Streets and an indoor arena at Seventh and Townsend Streets. Although the stadium/arena is in early planning stages with little detailed information available, the Department of City Planning prepared Supplements to the Mission Bay and SOM DEIRs to provide an analysis of the cumulative effects of the stadium/arena on the Mission Bay and South of Market areas. The analysis is necessarily limited by the amount of information available about the possible ballpark and arena. Although the stadium and arena would not have direct effects on the proposed building or its impacts analyzed in this 299 Second Street SEIR, and although the building's contribution to the overall cumulative would be a smaller proportion of those cumulative impacts if the stadium/arena were to have the impacts predicted, this building SEIR does summarize and incorporate by reference cumulative impact analyses from the Mission Bay and SOM EIRs, so it seems appropriate to include the information related to cumulative impacts that is presented in this Supplement to this EIR.

In November 1989, San Francisco voters defeated a ballot proposition to approve funding and zoning which would allow for construction of the stadium. Therefore, the analysis is conservative. Should the stadium and an arena be reconsidered in the future, the discussions in this Chapter about the stadium/arena will provide information about associated impacts.

A. LAND USE AND ZONING

The following discussion of cumulative land use impacts is added (beginning as the first paragraphs) under B. Land Use and Zoning, FEIR p. 57:

CUMULATIVE CONTEXT

The Downtown Plan EIR included forecasts of amounts of space of various types that would be built in the C-3 District between 1984 and 2000. The Final EIR for 299 Second Street summarized this forecast for the relevant major C-3 District

uses, primarily offices: Information from the Downtown Plan EIR included forecasts of amounts of space likely to be found in the C-3 District in the future and of the numbers of employees likely to be working in the C-3 District in the future. The forecasts of total space in the year 2000 were about 125,243,000 square feet in all uses including about 78,900,000 in office uses. Total employment in the C-3 District was forecast to be about 372,000 persons in 2000.

The Mission Bay EIR and the South of Market EIR include revised forecasts of space by use for the C-3 District and for the South of Market area; the Mission Bay EIR also includes forecasts for the rest of the Downtown & Vicinity.

These new forecasts account for the decline rather than growth in employment in the C-3 District and elsewhere in the Greater Downtown during the early 1980's, provide new forecasts of space expected over the timeframe, and account for specific buildings approved or under construction since the Downtown Plan EIR forecasts were prepared. The forecasts go beyond known and proposed building space, to forecast employment and space growth for a particular timeframe past that during which the known and proposed space would be built and absorbed. The forecasting method and background is described in the Downtown Plan EIR (pp. IV.B.1-8, IV.B.12-43, IV.B.54a-61, and Appendices G and H). The method was not changed in forecasts prepared for the South of Market and Mission Bay EIR analyses, but several changes were made in the analysis and results.

Baseline data providing existing employment and space in the analysis area were updated to 1985, resulting in the changes in forecasts for future C-3 District employment and space. Specific forecasts were also prepared for areas outside the C-3 District, first for the South of Market area and then for Mission Bay and the rest of the Downtown & Vicinity. Finally, for Mission Bay purposes only, employment and space growth and residence patterns were forecast on a regional basis for the estimated Mission Bay buildout year of 2020. The forecasts of future office space and employment, and an explanation of the methods used, can be found in the South of Market EIR, pp. 66-77 and Appendix B, and in the Mission Bay EIR Vol. I, p. II.31, Vol. II. pp. VI.B.13-23, VI.B.38-79, VI.B.106-112, and VI.B.119-123, and Vol. III, Appendix B (see especially Mission Bay EIR Appendix B, pp. XIV.B.24-30 for a comparison to the Downtown Plan EIR forecasts).

In summary, the forecasts show about 94,459,000 to 94,884,000 gross sq. ft. of occupied office space in the Downtown & Vicinity in the year 2000. The range is based on different amounts of office space in Mission Bay, depending on the development program approved and built. This is an increase of about 25,000,000-26,000,000 gross sq. ft. over the amount existing in 1985. The forecast accounts for demolition and new construction and for conversion of existing buildings from non-office to office uses in the future. It also accounts for absorption of several million sq. ft. of office space vacant in 1985 and another several million approved or under construction as of 1985. A five percent vacancy rate is assumed in year 2000. A relatively small amount of the total space would be proposed and approved between 1986 and 1997 (to be built and absorbed by 2000). (See Mission Bay EIR, Vol. III, pp. XIV.B.37-41.) About 75% of the office space would be in the C-3 District. The proposed project would contribute about one-third of one percent of the total future amount of office space in the Downtown & Vicinity.

The following is added after the original second paragraph under Land Use, FEIR p. 57, to reflect recent development activity in the project vicinity:

> In conjunction with other approved and proposed projects, the project would continue the trend of high-rise office development in the South of Market area. Traditionally, the South of Market area has been characterized by businesses such as retail, printing and other services. Some older buildings in the area, which typically house these uses, have been replaced by high-rise office buildings.
>
> Parts of the South Market area, particularly northeast of the project block, have been developed with high-rises such as Fremont Center, Pacific Gateway, 100 Spear Street, 160 Spear Street, 71 Stevenson, 49 Stevenson, 100 First Street, 90 New Montgomery Street, 455 Market Street, and 301 Howard Street. The 75 Hawthorne Street and Marathon Plaza buildings have been completed south of Howard St. The project would be similar to development on blocks to the north and west. It would be similar to other approved high-rises in the vicinity such as 222 Second Street, 101 Second Street, and 524 Howard Street. The project would differ from development immediately east and north of the project site. The project would represent the continuing expansion of the downtown financial district into the area surrounding the Transbay Terminal, an area identified for such development in the Downtown Plan.
>
> The project would be consistent with the description of the C-3-0 (SD) Downtown Office district described in Article 2, Section 210.3 of the City Planning Code. The section describes the district as "playing a leading national role in finance, corporate headquarters and service industries and serving as an employment center for the region."

The following paragraph is added as a new first full paragraph under 1. Planning Code, FEIR p. 57:

> The City Planning Code contains controls regarding scale, intensity, and location of growth in downtown San Francisco; architectural preservation; open space; sunlight access; wind criteria; and transportation. The relationship of the project to selected sections of the City Planning Code is discussed here and summarized in Table 2, pp. 59 to 62.

The second sentence of the last paragraph, FEIR p. 57 is revised to reflect the incorporation of the Downtown Plan Controls into the City Planning Code (revisions are underlined):

> Development at densities above the base floor area ratio in this area is appropriate only if there is a commensurate reduction in the allowable density of development on other sites in the downtown by the transfer of development rights from eligible sites as provided in Section 128 of the City Planning Code.

The third sentence of the first partial paragraph, FEIR p. 58 is revised for accuracy as follows (revisions are underlined):

> Thus, under the City Planning Code, the effective FAR for the project would be 9.4:1.[3]

The fifth sentence of the second paragraph, FEIR p. 58 is revised as follows to reflect an update of the City Planning Code (revisions are underlined):

> The new building would not conform to upper tower bulk requirements between 160 feet and 162.5 feet in height, or to lower tower diagonal dimensions, and would require an exception under Section 309 of the City Planning Code pursuant to exception provisions in Section 272 of the Planning Code.

The first item in the column titled "Project" in Table 2, FEIR p. 60 is revised as follows to reflect an update of the City Planning Code (revisions are underlined):

> Project would include a setback of 10' along the interior lot line, 5 feet less than the required 15', but could be allowed under Section 309 of the City Planning Code pursuant to exception provisions in Section 132.1(c)3 of the Planning Code.

The third paragraph in the column titled "Project" in Table 2, FEIR p. 60 is replaced with the following to reflect an update of the wind analysis for the project:

> Project would exceed the pedestrian comfort criterion of 11 mph at six locations requiring an exception to the City Planning Code (Sections 309 and 148).

The fifth sentence of the first full paragraph, FEIR p. 63 is revised as follows to reflect an update of the City Planning Code (revisions are underlined):

> The screen wall would require approval by the City Planning Commission under Sections 272 and 309 of the City Planning Code.

The following is added as an additional paragraph following the first full paragraph on FEIR p. 63:

> "The wind study conducted for the project (substituted Appendix G, set forth in the SEIR) shows that with the project the 11 mph pedestrian windspeed comfort criterion would be exceeded at six locations near the site. Thus, the project would require approval of exceptions to allow such exceedances pursuant to Section 309 and 148 of the Planning Code."

B. URBAN DESIGN AND VISUAL QUALITY

Figures 17-20, FEIR pp. 67-69 and 73 illustrate views of the proposed project in street-level and long-range vantage points. Because of development activity since the FEIR was published, the following text discusses changes that would be apparent in those figures:

> Figure 17, FEIR p. 67, Photomontage: Looking North on Second: the Marathon Plaza building (identified as the Second and Folsom Street Project in the figure) in the foreground is now complete.
>
> Figure 18, FEIR p. 68, Photomontage: Looking East on Folsom Street: the Marathon Plaza building is now complete.
>
> Figure 19, FEIR p. 69, Photomontage: Looking South on Second Street: the Marathon Plaza building is now complete.
>
> Figure 20, FEIR p. 73, View of Project from Potrero Hill: Marathon Plaza is completed. Revised Figure 20 is included on p. 26 of this document.
>
> View of Project from Twin Peaks: new Figure 20a is included on p. 27 of this document and is added to the FEIR on p. 73a.

The figure reference in the third sentence of paragraph four on p. 72 of the FEIR is revised as follows to include the additional figure (revised text is underlined).

> The project's tower would be viewed as a new element in the City's emerging form of taller buildings covering an increasing land area, including the Financial District and South of Market area (Figures 20 and 21, pages 73-73a).

C. SHADOW AND WIND

The following is added at the beginning of the third paragraph on FEIR p. 75:

> Open Space
>
> The shadow studies show that the project would not add shadows to open space areas in the project vicinity.

The following is added after the fourth paragraph, FEIR p. 75, as an update of the status of Proposition K open space:

> In January 1989, the City Planning and Recreation and Park Commissions adopted shadow criteria for all 15 parks in the C-3 districts. These districts have the greatest potential for new shadow on parks because of the permitted height limits.

The commissions: 1) set an Absolute Cumulative Limit for new shadow for each open space; 2) (where new shadow is allowable) projected individual building impacts and allocated a portion of the additional allowable shadow among specific projects, within the Absolute Cumulative Limit; and 3) set forth qualitative criteria for new shadow. This information provides an update on the sunlight ordinance. It does not affect the analysis or conclusions of the FEIR as no protected properties would be affected by the project.

Section 2. Wind, FEIR p. 81, is replaced with the following (revisions are underlined):

Prevailing winds in San Francisco are from the northwest, west-northwest, west and west-southwest. Wind tunnel measurements were made at 27 surface locations near or within the project site for each of the prevailing wind directions using a scale model of the site, the project and vicinity. The model was used for testing of three configurations 1) existing conditions, 2) existing conditions plus the 299 Second Street project, and 3) existing conditions plus the 299 Second Street Alternative Seven and Seven A. The study included separate tests for each of San Francisco's four major prevailing wind directions: northwest, west-northwest, west and west-southwest. Existing conditions included the approved 524 Howard Street, 222 Second Street and 101 Second Street developments.

Wind test data were combined with wind records to predict the wind speeds that would be exceeded 10% of the time at each of the 27 test locations. The predicted winds were then compared to the comfort and hazard criteria of the City Planning Code; established in the Downtown Plan. (See Appendix G, p. A-55, [Appendix G, p. A.9, herein] for a summary of the full wind analysis. The locations of the measurement points and the results of the wind tunnel study, including compliance with the comfort criteria are shown and summarized in Appendix G, Figure G-1, p. a-69 [p. A.13, herein.]) Throughout the following discussion, the wind speeds reported refer to the equivalent wind speeds that would be exceeded ten percent of the time.[2]

Existing wind speeds are 5 mph to 12 mph at the 27 locations tested . Existing winds at all but one location meet the 11 mph comfort criterion. The southwest corner of the Folsom Street and Second Street intersection experiences 12 mph winds under existing conditions.

The project would cause wind speeds to increase at 14 of 25 test locations, to remain the same at 7 locations, and to decrease at 4 locations. Two locations (locations 24 and 25 on Figure G-1) were not tested under project conditions because they would cease to be outdoor locations with project development. Five of the fourteen increases due to the project would lead to exceedances of the 11 mph wind comfort criterion. Three locations northeast of the project site on Clementina Street (northeast corner of the project) would exceed the 11 mph comfort criterion; one location would increase from 7 to 12 mph, one location would increase from 10 to 12 mph and one location would increase from 11 to 16 mph. Three locations south of the project site across Folsom Street would exceed the 11 mph comfort criterion; two locations would increase from 11 to 12 mph and one location would continue to measure 12 mph.

MAJOR STRUCTURES EXISTING, PROPOSED AND UNDER CONSTRUCTION

1 BANK OF AMERICA	4 101 SECOND STREET (approved)	7 75 HAWTHORNE	10 524 HOWARD (approved)	13 **PROJECT**
2 TRANSAMERICA	5 222 SECOND STREET (approved)	8 100 FIRST STREET	11 EMBARCADERO 4	
3 525 MARKET	6 101 CALIFORNIA	9 FREMONT CENTER	12 PACIFIC GATEWAY	

299 SECOND STREET

FIGURE 20
VIEW OF PROJECT FROM POTRERO HILL

SOURCE: Environmental Science Associates, Inc.

MAJOR STRUCTURES EXISTING, PROPOSED AND UNDER CONSTRUCTION

1 BANK OF AMERICA
2 345 CALIFORNIA
3 FREMONT CENTER
4 PACIFIC GATEWAY
5 100 FIRST STREET
6 101 SECOND STREET (approved)
7 PACIFIC TELEPHONE
8 524 HOWARD (approved)
9 222 SECOND STREET (approved)
10 **PROJECT**

299 SECOND STREET

FIGURE 20a
VIEW OF PROJECT FROM TWIN PEAKS

SOURCE: Environmental Science Associates, Inc.

Winds within sidewalk areas would exceed the 11 mph comfort criterion for pedestrian areas at six test locations by one mph at each location except at location nine adjacent to the project on Clementina Street (northeast corner of the project), where there would be a five mph exceedance. For the project's sitting area, the location could not be tested because there is a building there. (For a description of wind conditions with the sponsor's preferred alternatives, see the discussion of alternatives beginning on p. 168h. [see p. 79 herein.])

D. ARCHITECTURAL, HISTORIC AND CULTURAL RESOURCES

The following is added to FEIR p. 85, as the last paragraph, to reflect current information on cultural resources potential in the South of Market area:

The site could contain cultural resources from the Prehistoric Period (ca 8000 B.C. to 1775 A.D.), the City Building Period (1858-1887), the Late Nineteenth Century Period (1887-1906) and, perhaps, the Twentieth Century Period (1906-present). While earlier archival research produced no evidence to suggest that these materials would be noteworthy from either a historical or archaeological perspective, discovery of a prehistoric shellmound in a subsurface location at 49 Stevenson Street in May 1986 about three blocks north of the project site, of a prehistoric shellmound and burial site at Yerba Buena Center Central Block 2 about two blocks northwest of the project site, and historic and prehistoric finds at other South of Market locations suggest that other deeply buried historic and prehistoric sites may exist in the project vicinity, even in places subject to previous grading./2,3/

The following footnotes are added after footnote /1/, FEIR p. 85:

/2/ Pastron, Allen G., Ph.D., President, Archeo-Tec, letter, October 17, 1988. This letter is on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister.

/3/ Pastron, Allen G., Ph.D., President, Archeo-Tec, telephone conversation, October 5, 1989.

E. TRANSPORTATION

The following text replaces the Transportation Impacts text, FEIR pp. 86-115. The primary changes from the FEIR are updated modal split data for project and cumulative trip generation, updated methodology for parking assessment, and an added discussion of Mission Bay EIR and South of Market EIR cumulative analyses. Discussion of project-specific impacts on loading and pedestrian issues are the same as the FEIR; they are included here for completeness. FEIR Tables 3-8 are deleted, and replaced with Tables S-1 and S-2 of this document.

CUMULATIVE CONTEXT

Introduction

The transportation sections of the Mission Bay and South of Market Area Plan EIRs address various transportation impacts in 2000 and 2020. The Mission Bay transportation impact analyses evaluate travel generated by Mission Bay in the context of growth in travel projected for the rest of the City and Bay Area. The South of Market analyses do the same for that area. It is growth in the City and region that would result in the greatest impact on most of the transportation systems studied.

The two EIRs use slightly different analysis methodologies, but employ the same basic screenline approach to study regional transportation impacts of San Francisco employment growth. Results differ somewhat, based on the differences in methods. The differences are generally less than five to ten percent; this difference is well within the range of accuracy of forecasts to scenarios 15 years away. Therefore, the two sets of results are compatible. This summary of cumulative transportation effects will report largely from the Mission Bay EIR, with South of Market EIR results included where there is notable additional information.

In summary, both EIRs show that by 2000, congested highway conditions would result in a shift from autos to higher use of transit and ridesharing by travelers from the Downtown & Vicinity. The East Bay would be the most congested corridor, the Peninsula would be the least. By 2020, travel demand would exceed the capacity of regional transportation systems. To serve regional growth, expanded transit and freeway systems would be required.

The proposed project at 299 Second Street is expected to be completed, occupied and the space new to downtown San Francisco absorbed by 2000. Therefore, the impacts of the project and its contribution to cumulative transportation impacts are analyzed largely in the 1985-2000 context. The information from the Mission Bay EIR for 2020 is presented for the reader's information and to provide a very long-term picture as it is presently reported.

The Analysis Years

The analysis includes studies of transportation conditions in the year 2000, and, in order to account for buildout of the Mission Bay planning area, in the year 2020 in that EIR. Analyses for the 1985-2000 timeframe can rely on reasonably confident estimates of regional transportation capacity improvements as defined by the regional agencies' highway and transit planners. There are no regional transportation plans or policies for 2020. Therefore, the Mission Bay EIR used a different approach for this longer-term analyses. Rather than reporting the impacts of future travel on existing or planned transportation systems, as is done for 2000, the estimates of 2020 travel conditions are used to identify the types of transportation improvements likely to be necessary to serve growth in travel between 2000 and 2020.

For both forecast years, 2000 and 2020, the projections of travel assume that many commuters from the Downtown & Vicinity who would otherwise drive, would shift to increased use of transit and ridesharing in response to growing highway congestion and the availability of improved transit service. The history of commuting to the Downtown & Vicinity shows that substantial shifts in travel from autos to other modes of travel have occurred when transit and ridesharing systems were improved. In addition, in the future, highways and bridges leading to/from San Francisco are expected to be considerably more crowded, and transit capacity is expected to be increased between downtown San Francisco and other Bay Area locations, making

transit an attractive alternative to crowded freeways. The travel forecasting procedures therefore assume that shifts from auto to ridesharing and transit would continue into the future. (Mission Bay EIR, Vol. II, p. VI.E.52; South of Market EIR, p. 109-112, C-39.)

Regional Travel

Regional travel was analyzed for each of the three major approaches to San Francisco: the North Bay via the Golden Gate Bridge; the East Bay via the San Francisco-Oakland Bay Bridge; and the Peninsula via the U.S. 101 and I-280 freeways. The analysis for 2000 is based on comparing the projected demand for transportation service with the capacities expected to be available. The analysis for 2020 uses the transportation system capacities developed for 2000 as a base and identifies additional capacity above the 2000 level that would be needed to serve the travel demands of 2020.

The regional travel forecasts assume that where severe congestion is projected for the highway system and where parallel transit and ridesharing systems are available, travelers would choose to shift from their autos to fill the capacity available in transit and ridesharing systems. Those shifts are assumed to be made by travelers from the Downtown & Vicinity only, because they would have more transit and ridesharing options than travelers from other parts of the City or region. The shift to transit and ridesharing would be greatest for travel to the East Bay, somewhat less to the North Bay, and none would be necessary for travelers to the Peninsula by 2000.

Growth in the entire Downtown & Vicinity and the rest of the region, rather than growth in South of Market or Mission Bay alone, would be the primary source of travelers trying to cross the Golden Gate and Bay Bridges, and to use the U.S. 101 and I-280 freeways at peak hours. (Mission Bay EIR, Vol. II, pp. VI.E.31-34, 50-52 56-83, and 211-214; South of Market EIR, pp. C-47.)

Downtown & Vicinity - Muni

To analyze cumulative impacts on Muni, individual Muni routes were grouped on the basis of the location of their alignments and stops into the "Northeast," "Northwest," "Southwest," and "Southeast" areas of San Francisco, referred to as "screenlines." By 2000, ridership would generally be accommodated on the Muni screenlines. Overcrowding would occur on the Northwest screenline during the p.m. peak hour, and on the Northeast screenline during the p.m. peak period. However, by 2020, all but the Southwest screenline would be operating beyond Muni's load standard. Additional

service required could include new light rail service to the Geary Boulevard corridor to the Northwest, and to the Bayshore corridor in the Southeast area of the City. (Mission Bay EIR, Vol. II, pp. VI.E.31-36, 62-67, 79, 93-99, 103-104, 115-124, 217, and 231; South of Market EIR, pp. 100-102, 114-117, C-20 to C-21, and C-37.)

North Bay Corridor

The Golden Gate Bridge and its approaches operated with moderate congestion (driving speeds of about 35 to 45 mph) in peak hours in 1985. By 2000, heavy congestion on the bridge (a driving speed of about 30 mph) would last about two hours during the p.m. peak if additional transit capacity between downtown and the North Bay were provided, and a substantial shift from autos to transit and ridesharing were made by travelers from the Downtown & Vicinity. If no shift from 1985 transit use levels were to occur, the period of heavy congestion on the Bridge would last for about four hours in 2000.

Golden Gate Transit indicates that it would be able to increase its bus and ferry capacity between downtown and the North Bay by 2000 in response to the demand generated. Golden Gate Bus ridership would about double, while ferry ridership would grow by about 60% from 1985 to 2000. Ridesharing is projected to increase by 7 to 15% between 1985 and 2000 in the North Bay. Expected increases in transit capacity would be expected to meet increases in demand.

By the year 2020, heavy congestion on the Golden Gate Bridge could last four hours, assuming the levels of transit and ridesharing used in 2000, if there were no additional transportation improvements between 2000 and 2020. By that time, the need to consider major new transportation infrastructure and transit systems will have become apparent.

That next phase of regional transportation planning could consider adding a second deck to the Golden Gate Bridge to provide transbay capacity for new bus and carpool lanes, or a light-rail line, either of which would extend between downtown San Francisco and Sonoma County. (Mission Bay EIR, Vol. II, pp. VI.E.31-34, 39, 41, 71-78, 80-82, 84-89, 94-100, 103-111, 114-125, 129-137, 214-215, and 225-226; South of Market EIR pp. 98-100, 103-105, 112, 118, 119-124, and C-41 to C-42.)

East Bay Corridor

There is virtually no room for additional vehicle traffic on the eastbound Bay Bridge approaches between 4:00 p.m. and 6:00 p.m. While the growth in travel demand on the Bay Bridge from the Downtown & Vicinity could be served by shifting those commuters from autos to transit and increasing ridesharing, trips to or from other areas of the region are not well served by transit and would continue to be made primarily in private vehicles.

Even with the substantial shift to transit and ridesharing assumed in the analysis, the Bay Bridge would operate at capacity for about 4.5 hours in 2000, resulting in severe congestion on the San Francisco approaches to the bridge, travel speeds of less than 30 miles per hour, and heavy congestion on the bridge itself every weekday afternoon. Were the shift to transit and ridesharing from 1985 levels not to occur the period of severe congestion in 2000, would extend for over 5.5 hours.

By 2000, the numbers and proportion of commuters from the Downtown & Vicinity on BART during the p.m. peak period would be substantially higher. The number of trips on AC Transit would increase by about 65% based on the service available and the need to accommodate some BART riders by 2000.

The ratio of passengers to seats on BART would increase from 1.30 in 1985 to 1.63 in 2000. AC Transit loads would increase from 0.85 passengers per seat in 1985 to 1.30 in 2000. The capacity of BART is based on the maximum capacity of BART's computer system to track trains in the transbay tube. The crowding projected for BART could not be fully mitigated during the peak period because of the system's technical operating limits.

An increase of seven percent in ridesharing from the Downtown & Vicinity across the Bay Bridge is projected for 2000. Even with substantial shifts to transit and ridesharing by commuters from the Downtown & Vicinity, by 2020 severe congestion on the Bay Bridge and its approaches would last for over five hours. The number of regional vehicle trips which could not be served by the Bay Bridge would grow from about 3,000 peak-period vehicles in 2000 to between 5,500 and 5,800 in 2020.

Mitigating those levels of congestion would require consideration of major changes to the regional transbay transportation system connecting the West Bay and East Bay. Virtually all of the concepts would require the City to work with MTC, Caltrans, and local government agencies to undertake the regional planning needed to expand transbay transportation capacity. (Mission Bay EIR, Vol. II, pp. VI.E.31-34, 37-41, 71-78, 80-82, 87-91, 94-98, 100-101, 103-123, 126-127, 129-131, 133-140, 215-216, and 226-230; South of Market EIR pp. 96-100, 102-104, 111-124, and C-42 to C-45.)

Peninsula Corridor

Between 1985 and 2000, traffic would increase on U.S. 101 and Interstate 280, the freeways serving the Peninsula. However, there would be less congestion on those routes at the San Mateo County Line than on the Golden Gate and Bay Bridges. Both U.S. 101 and I-280 were only moderately congested at the San Mateo County line in 1985. In or near San Francisco, the capacity of local streets, U.S. 101, and I-280 would be sufficient to handle future travel demand; the switch from highway to transit modes by Downtown & Vicinity commuters assumed for the Golden Gate and Bay Bridges would not be required for the routes serving the Peninsula. The transit analysis for 2000 and 2020 in this regional corridor therefore uses the same rates of transit use as found in 1985.

U.S. 101 at the San Mateo County line would operate at capacity for about 2.5 hours in 2000, with heavy congestion and speeds of 30 miles per hour occurring during that afternoon peak period. By 2020, heavy congestion on U.S. 101 would last for over four afternoon hours. I-280 would operate with only moderate congestion at the county line in 2000 and 2020 with speeds averaging 35 to 45 miles per hour throughout the peak period. The congestion projected in 2020 would be reduced if commuters from the Downtown & Vicinity chose to increase their use of transit or ridesharing above the 1985 levels.

The use of transit to the Peninsula would increase. The level of service on transit would remain high, as there would be no system where ridership would be greater than available seats. Relocation of the CalTrain Station to Seventh and Townsend under some Mission Bay development scenarios would reduce potential use of that transit service; use of BART and SamTrans would grow by about 40% while CalTrain

ridership would grow by just 4%. The project would be located along one of the alternative alignments proposed for the Caltrain line to San Francisco's downtown, now under study. In 2020, CalTrain, BART and SamTrans would carry even larger loads, but would continue to operate below capacity. (Mission Bay EIR, Vol. II, pp. VI.E.31-38, 42-43, 61-62, 71-82, 85-89, 91-92, 94-99, 101-104, 106-109, 113-122, 128-137, 216-217, and 230-231; South of Market EIR pp. 98-105,112-124, and C-43 to C-45.)

Regional Highway Constraint Points

As a result of growth in regional travel demand, the following freeway segments could constrain San Francisco travel: the I-80/580/I-880 interchange in Oakland; the Caldecott Tunnel on State Route 24 I-80 in Alameda and Contra Costa Counties, U.S. 101 in Marin County, and U.S. 101 south of I-380 in San Mateo. (Mission Bay EIR, Vol. II, pp. VI.E.133-140.)

Local Streets and Transit

Major Intersections

The street networks would be improved in a portion of the Mission Bay area under the I-280 Transfer Concept Program (TCP), which includes removal of the I-280 stub between Third and Sixth Streets, widening and improving King Street, construction of new I-280 on- and off-ramps from King Street. Extension of Muni Metro light rail service to the CalTrain terminal (at Fourth and Townsend Streets) is also expected.

The point of greatest congestion within Mission Bay in 1985 was the intersection of Third and Berry Streets. That intersection was heavily congested because it served both city traffic on Third Street and traffic destined for downtown on the I-280 freeway. With the I-280 ramps relocated from Berry to King Street as proposed, the intersection of Third and King Streets would replace Third and Berry as the point of greatest congestion within Mission Bay. The intersection of Third and King would be severely congested in all Mission Bay Alternatives by 2020. Most of the traffic passing through this critical intersection would not be destined for Mission Bay, but would be traffic from other areas, including particularly the downtown, using the I-280 freeway interchange or traffic which needs to pass through Mission Bay on its way to other parts of the City.

A second intersection along four-lane King Boulevard at Fourth Street would also be congested by 2020. That congestion would again be caused primarily by traffic not destined to Mission Bay. Congestion projected for King Street and its intersections in the Mission Bay Project Area could be mitigated with a six-lane roadway, with parking permitted only at off-peak hours. To mitigate congestion projected for Third and Mariposa Streets, that intersection could be widened to allow double southbound right-turn lanes on Third and a separate eastbound left-turn lane on Mariposa.

It is expected that operating conditions on local South of Market streets and intersections not serving freeway ramps would continue to operate in a generally free flowing manner in the future, at least to 2000. Severe congestion would continue to occur in both 2000 and 2020 on several of the James Lick (I-80) freeway approaches in the South of Market Area near Mission Bay. Those streets and freeway ramps serve traffic destined for the Bay Bridge and Peninsula. Several of those streets are heavily congested now. The number of severely congested I-80 approach intersections would increase by 2000 and increase again by 2020, whether or not Mission Bay is developed.

First and Harrison, Fifth and Bryant, and Sixth and Brannan presently operate at LOS F and would continue to do so in the future. Other intersections at or near freeway ramps, such as Mission and Beale and Fourth and Harrison would deteriorate to LOS E or F in the future. Intersections near freeway ramps are often affected by freeway access queues, as cars waiting to enter the freeway back up to or through these intersections. This affects local traffic attempting to use streets in these areas. Some traffic will shift and use less congested routes in the future as this problem increases. Continued enforcement of the ordinance passed in 1987 prohibiting blocking an intersection could help to limit this problem.

Mission Bay growth would account for less than 5% of total traffic at the freeway approaches and never more than 15% of total traffic on the major through routes within the Mission Bay Area. Growth in the South of Market area would account for a smaller proportion of total traffic at freeway approaches than would Mission Bay. The 299 Second Street project would contribute less than one percent of the traffic at these intersections. (Mission Bay EIR, Vol. II, pp. VI.E.2-13, 140-148, 166-175, 199-201, and 218-219; South of Market EIR, pp. 105-106, 124-126, and C-47 to C-48.)

Local Transit

For the local street system to operate at the level described above, there would have to be a high level of public transit use in Downtown & Vicinity. In 1985, about 55% of all afternoon peak-hour outbound trips from the Downtown & Vicinity were on transit. That level of transit could grow to about 70% of all trips, based on the increased capacity of transit systems expected to be available by 2000.

Muni proposes increased route and service capacity in the year 2000, in the Mission Bay Area. This increased capacity would be able to accommodate demand from growth in that area, except for the 47-Van Ness line. That line would exceed Muni's load factor standard because it would carry loads more than 25% over seated capacity if housing were built in the area.

The Muni Metro expansion to Mission Bay would also serve the southern portions of the South of Market area. An improvement in the southwest corridor Muni service would also occur as a result of completion of the Muni Metro turnaround at the foot of Market St. in the future. Other Muni corridors are expected to remain at current levels of service at least through year 2000. (Mission Bay EIR, Vol. II, pp. VI.E.148-152, 175-178, 201-202; South of Market EIR, pp. 112-117, C-45 to C-46).

The Proposed Downtown Baseball Stadium and Arena

Since publication of the Mission Bay and South of Market Plan Draft EIR's in August 1988, Mayor Art Agnos released an invitation for proposals for a stadium to be located on the block bounded by Second, Third and King Streets, and San Francisco Bay; and an indoor arena complex at Seventh and Townsend Streets. The proposed stadium would have a capacity of about 45,000, and the arena 20,000.

Because of the potential magnitude of activity posed by these two facilities, additional information on potential cumulative transportation and air quality impacts in year 2000 is presented here. This is to ensure that implications of the two facilities as they may affect city and regional systems during the peak commute travel period have been adequately accounted for in the cumulative analyses, and that they have been considered in the context of the environmental review of the 299 Second Street project.

The cumulative analysis summarized below is excerpted from the Draft Supplements to the Mission Bay and South of Market Plan Draft EIR's, both published on March 17, 1989 and which are incorporated by reference.

The analyses are based on a series of conservative assumptions which, taken together, tend to overestimate future impacts of the stadium/arena. The analyses evaluate two event scenarios, both of which include a sellout at the baseball stadium with travel patterns that overlap with the weekday afternoon commute. Such attendance figures, while possible to occur, are conservatively high when compared to actual recorded attendance figures averaging 18,000 to 19,000 for weekday or weeknight games at Candlestick Park. Scenario One, which assumes fans leaving the stadium following a sellout baseball game on a weekday afternoon would depart from 3:00 to 4:00 p.m., would generate the most severe impacts. The summary below reflects those worst-case impacts.

Another conservative assumption is that the analyses cannot account for the degree to which visitors to the downtown stadium/arena would be workers or visitors already in the downtown area. Although it is expected a downtown stadium/arena would attract more visitors from the downtown than currently occurs at Candlestick, there has been no discount factored in for trips from the stadium/arena during the commute period that would have been generated anyway by downtown workers and visitors leaving the office or shops at the end of a workday.

Transportation Impacts

Travel conditions for the regional corridors serving San Francisco are already projected to be operating at congested levels in 2000, particularly for the North Bay and East Bay. All of the highway screenlines (U.S. 101-South Bay, U.S. 101-North/Golden Gate Bridge, I-80/Bay Bridge), except I-280/ South Bay are projected to be operating at or beyond capacity during the 4:00 to 6:00 p.m. peak period. The I-80/Bay Bridge screenline is projected to operate at the lowest levels, with about 4.5 hours of congestion (when that segment of the freeway is filled to capacity); U.S. 101-South and U.S. 101/Golden Gate Bridge are projected to be congested for about three and two hours, respectively. In all cases, traffic volumes before and after these periods also would be higher, though not up to full highway capacity.

Although additional freeway trips generated by the stadium would occur between 3:00 and 4:00 p.m., before the 4:00 to 6:00 p.m. peak commute period, those trips would further contribute to expanded congestion periods already projected to occur in 2000. For the Golden Gate Bridge, the congestion period could be increased to a total of three hours; for the Bay Bridge, the congestion period could extend for a total of about five hours. Congestion on I-280 and U.S. 101 to the South Bay could extend for 3.5 and two hours, respectively.

It is important to note that travel demand generated by the proposed stadium would likely be less automobile-intensive than that generated from Candlestick Park, due to the availability of more public transit alternatives, and more limited parking resources in the downtown. Thus, by comparison, vehicle trips generated by Candlestick Park, were they to occur in 2000 instead of trips from a downtown stadium, would result in more congested conditions on the freeways.

Transit impacts would be most severe on MUNI. MUNI would need to operate "Ballpark Special" bus service, similar to that currently provided to Candlestick Park. Assuming the attendance levels used in the analysis, up to 68 additional buses and 29 Metro railcars could be required, although it is possible that much of the MUNI demand could be accommodated by regularly scheduled service.

Additional rolling stock also could be required for BART-East Bay (up to seven railcars), CalTrain (13 railcars), Golden Gate Transit and AC Transit (up to ten and seven buses, respectively) if those carriers could not use existing vehicle stock to meet the pre-peak (3:00-4:00 p.m.) transit demand associated with the stadium.

Although vehicle need estimates were similarly prepared for SamTrans and BART-West Bay, it is less likely those estimates represent net new service requirements. This is because the Mission Bay and South of Market Draft EIR cumulative analyses project that there would be available unused capacity on these systems between 4:00 and 6:00 p.m.

Local traffic generated by stadium/arena events would mainly impact streets and intersections adjacent to the parking lots and garages serving the facilities, and intersections that serve freeway access ramps. Most streets further than about one-half

mile from the stadium/arena sites would not experience a substantial increase in volumes associated with stadium/arena activities; the city's grid system would offer many alternate routes to disperse traffic.

For intersections serving the freeway ramps, such as Second/Harrison, Fourth/Harrison and Sixth/Brannan Streets, the main impact of additional stadium/arena trips would be to lengthen the time during which these intersections would operate at congested levels of service. This is because starting and ending times of stadium/arena events on weekday afternoons and evenings are expected to occur just before or just after the peak afternoon commute period. Those intersections serving freeways would operate at poor levels of service (E or F), from about 3:00 - 5:30 p.m. or 4:30 - 7:30 p.m., depending on event time.

Parking impacts would be more severe for a weekday afternoon baseball sellout than evening events at the stadium/arena. The areas most affected by stadium/arena parking demand would be non-residential areas of Mission Bay and South of Market, and Showplace Square. Due to more limited parking supply during the day, it is assumed a higher proportion of afternoon visitors take public transit than evening visitors. For a weekday afternoon baseball sellout, visitors could find parking within a 15-minute walk radius of the stadium (a distance of about three quarters of a mile); this analysis assumes no on-street parking is available to stadium/arena visitors in major residential areas such as South Beach/Rincon Point, Potrero Hill, or areas of South of Market and Mission Bay.

Parking demand associated with weeknight stadium/arena events also could be accommodated within a 15-minute walking radius. Parking availability is greater at night than during the day, and thus it is not expected that nighttime visitors would use public transit to the degree that afternoon visitors would.

As explained at the beginning of this subsection, the Supplements to the Mission Bay and South of Market Plan Draft EIR's discussing the stadium/arena proposal include conservative transportation analyses. The analyses incorporate a double counting of impacts in a number of parameters, and evaluate the worst-case effects associated with sellout baseball games. Experience at Candlestick Park indicates that attendance averages are considerably lower than the 45,000 assumed in the stadium/arena analysis (about 18,000 - 19,000 persons).

Stadium and arena activities would have their greatest impacts on nearby streets and intersections. None of these streets or intersections is in the immediate vicinity of the proposed building analyzed in this EIR. With the exception of the streets leading directly to freeway ramps, automobile traffic resulting from the proposed building could avoid streets congested due to ballpark or arena activity. Freeway ramps are already shown to be at Level of Service E or F in the future, without a stadium/arena complex. Therefore the addition of a stadium/arena, in combination with forecast downtown and regional growth, would not change levels of service at freeways ramps, but would increase the length of time the ramps remained at those low levels of service.

The proposed building, when reviewed in the cumulative transportation context, contributes to cumulative outbound commute activities. If the cumulative travel numbers and peak durations were to increase due to the stadium/arena, the building's share of these cumulative travel activities would be smaller than that shown in the EIR analyses.

PROJECT IMPACTS

Travel Demand

On the basis of land use, the project would generate about 6,185 net new person trip-ends (pte) per day./1/ Travel generated by existing office and restaurant space on the project site (about 885 pte per day) has been subtracted from the total travel (about 7,070 pte per day) from the site with the project to give the net new travel from the project./2/ The trip generation calculations include travel to and from the project site by both visitors and employees of the project. Additionally, as expressed on a person trip-end basis, the trip generation includes all travel to and from the project in autos, service vehicles and trucks, on public transit and other modes (i.e., walking, bicycles, taxis, etc.). Projected outbound (peak commute direction) p.m. peak-period and peak-hour trips by mode expected to be generated by the project are shown in Table S-1. About 850 new outbound trips from the project would occur during the p.m. peak-period, of which about 515 would occur in the p.m. peak hour./3/

Assignments to travel modes for the project have been made on the basis of modal splits from the Mission Bay EIR for the years 1985 and 2000./4/ The 1985 modal split has been used for the purpose of identifying impacts at the single-project level (as

TABLE S-1: PROJECTED OUTBOUND TRAVEL DEMAND BY MODE FROM 299 SECOND ST. (pte)/a/

Travel Mode	P.M. Peak Period/b/ 1985	P.M. Peak Period/b/ 2000/c/	P.M. Peak Hour /b/ 1985	P.M. Peak Hour /b/ 2000/c/
Drive Alone	175	137	98	75
Car/Vanpool	110	106	61	58
Muni	242	201	147	120
BART	152	207	99	134
AC Transit	55	69	39	47
SamTrans	9	9	8	8
SPRR (Caltrain)	17	17	11	11
GGT Bus	26	39	17	26
Ferry	5	6	4	5
Other	60	60	30	30
TOTALS (rounded)	850	850	515	515

/a/ Person trip-ends.
/b/ The peak hour occurs during the two-hour peak period of 4:00 p.m. to 6:00 p.m.
/c/ The year 2000 modal split accounts for changes in travel behavior which are assumed to occur as a result of growth in Downtown & Vicinity, as described in Mission Bay EIR, Vol. II., pp. VI.E. 53-54.

SOURCE: Environmental Science Associates, Inc.

opposed to impacts at the cumulative level). The year 2000 modal splits have been applied to the project travel for the purpose of comparing project travel with cumulative future travel demand on the transportation systems serving San Francisco. The modal splits used were derived from aggregate data for the C-3 District, the zoning district that contains the project site, and the rest of Downtown & Vicinity. The actual modal split for travel from the project may vary from the average. However, because the travel demand forecasts used to derive the average modal split data implicitly include the travel from the project, application of the average modal split data to project travel has been assumed to be sufficiently accurate for purposes of comparison.

Master Plan Policies

The project would relate to Objective 1, Policy 7 of the Transportation Element of the San Francisco Master Plan, to, "seek means to reduce peak travel demand."/5/ As required by Section 163 of the City Planning Code, a member of the building management staff would be designated as a "transportation broker" to coordinate measures that are part of a transportation management program, such as: encouraging a flexible time system for employee working hours (to be developed by project tenants in consultation with the Department of City Planning) to reduce peak-period congestion by a planned spreading of employee arrivals and departures; encouraging transit use through the on-site sale of BART, Muni, and other carriers' passes to employees; and encouraging employee carpool and vanpool systems in cooperation with RIDES for Bay Area Commuters by providing a central clearinghouse for carpool and vanpool information, among other activities, as specified in the Department's implementation guidelines for Code Section 163.

General Objective 1, Policy 6 of the Transportation Element states as a goal to "develop a financing system for transportation in which funds may be allocated without unnecessary restriction for priority improvements according to established policies." (p. 10) The project sponsor would pay the Transit Impact Development Fee, as required by Ordinance 244-81.

The Downtown Plan discourages, "new long-term spaces in and around the downtown" (p. 126 of the Downtown Plan). The project would provide about 213 tandem valet parking spaces which would be for short-term use, and would remove 82 long-term spaces. Parking spaces would be controlled to assure priority for vehicles driven by the physically handicapped, vehicles using spaces for short-term rather than all-day parking, and vanpool and carpool vehicles. The parking rates for spaces made available to the general public would be structured to encourage short-term use of space and discourage all day parking (see mitigation measure, SEIR p. 72).

The project site is located along one of the alternative alignments for the proposed extension of Caltrain into downtown San Francisco. There would not be a physical conflict between this alternative alignment and the project as the alignment would be located in the street right-of-way. However construction effects of this alternative alignment would include temporary closure of Second Street which would affect access to the project site as well as to other addresses on Second St. The San Francisco Board of Supervisors adopted Resolution 124-84, on February 14, 1984, in support of a

downtown Caltrain terminal. Consequently, a Peninsula Corridor Joint Powers Board (JPB) was established in July 1987 for an interim period, consisting of representatives from Santa Clara County Transit District, SamTrans, and the City and County of San Francisco. The JPB is authorized to complete studies necessary to analyze such an extension and the acquisition requirements involved. In 1989, the JPB undertook a Peninsula Commute Service San Francisco Downtown Station Relocation Study that analyzed station location alternatives, including Seventh and Townsend, and several routes to a Market Street terminal or to the Transbay Terminal./6/

If a CalTrain Terminal were constructed in a central downtown location, ridership could increase above that projected under the Downtown Plan as analyzed in the Downtown Plan EIR. If the terminal were not constructed in a central downtown location, existing conditions and ridership projected in the Downtown Plan EIR would not change.

Mission Bay EIR Alternatives A and B propose relocation of the Caltrain terminal to Seventh and Townsend Streets. (It would remain at Fourth and Townsend in Alternative N.) The Missions Bay EIR conservatively assumes a 22% reduction in train ridership because of this relocation, and resulting increases in automobile trips and street and freeway congestion. The Mission Bay EIR discusses retaining a Fourth and Townsend terminal location via a tunnel to mitigate these impacts, or increased Muni bus service to a Seventh Street station to provide travel times to downtown or South of Market destinations equal to those from Fourth and Townsend.

Transit

Local Transit

There are about ten Muni routes with stops within one block of the project site. The Transbay Terminal is located about two and one-half blocks northeast of the site. Muni Metro and BART service in the Market St. subway are accessible via the Montgomery St. station (three blocks north of the site). Figure 27a, p. 46, herein shows transit routes in the project area. Photographic examples of p.m. peak-hour loadings on Muni vehicles are shown in SEIR Appendix B, Figure B-1, pp. A.4-A.6.

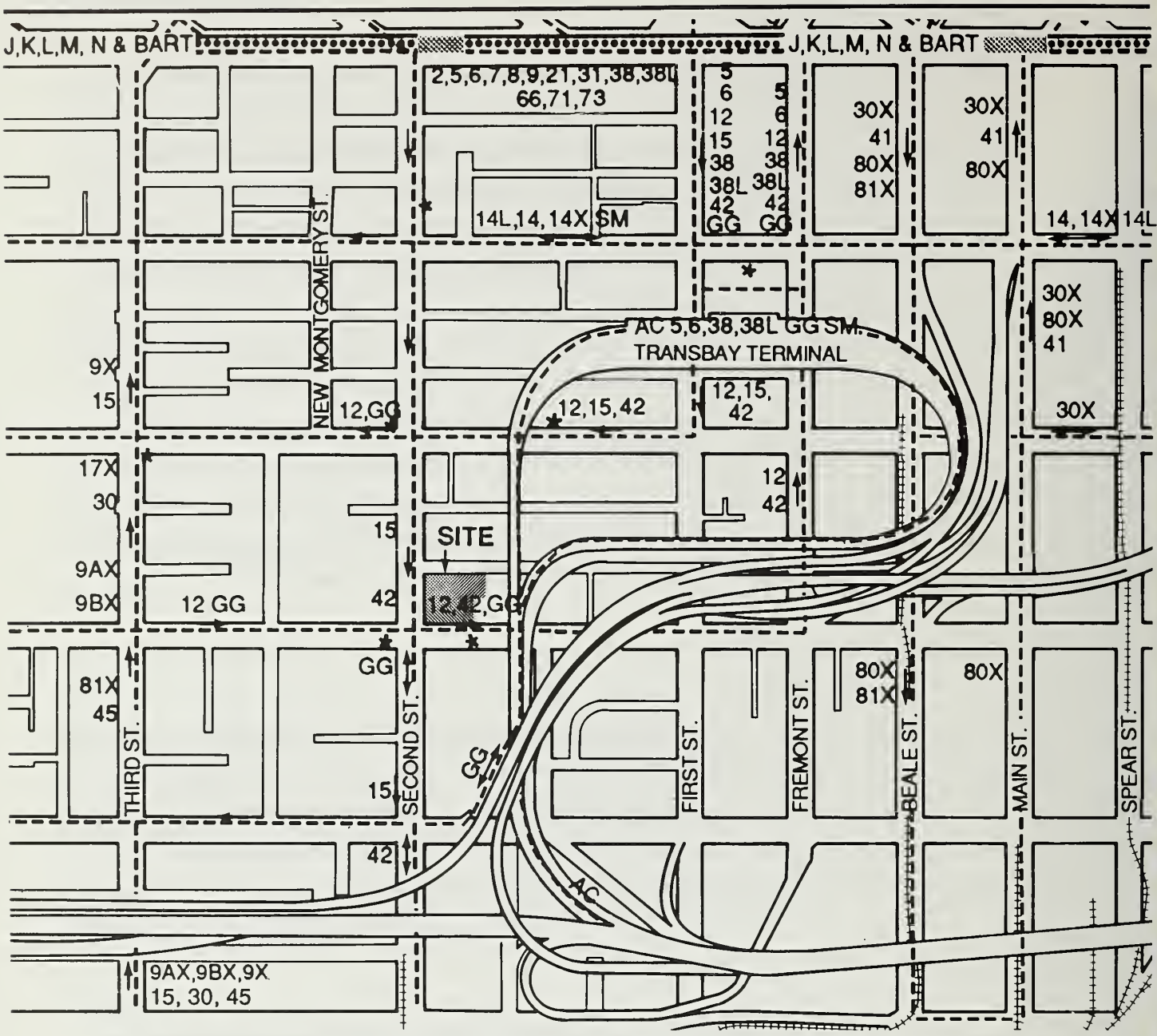
During the p.m. peak hour in 1984, most of the transit agencies were found to be operating in Level of Service (LOS) "D" or better. The exceptions include BART Transbay, where conditions were found to be at LOS "F", and Muni in the northwest and southwest corridors, where operations were found to be in LOS "E". Table B-3, FEIR Appendix B, p. A-26, contains descriptions of the various LOS for bus transit. In the p.m. peak hour in 2000, the project would generate about 120 new Muni trips and about 134 new BART trips outbound from the project site. Those new Muni trips would occur throughout the peak-period and would be assigned to various Muni lines in the corridor serving the project. Addition of the project p.m. peak-hour Muni riders to the existing (1984) Muni ridership would not increase the loading ratios on any corridors, and thus would not change the LOS. The number of Muni riders from the project would not be sufficient to affect Muni operations in any of the four corridors. Addition of BART riders from the project to the existing BART ridership would not increase p.m. peak hour Transbay or westbay loading ratios or change LOS.

Transit Corridor Analysis

The project would contribute to increases in transit ridership in the major transit corridors leading from downtown San Francisco. Existing peak-period and peak-hour transit ridership would be increased by about 0.4%. A ridership increase of this magnitude would not be measurable against the day-to-day fluctuations in transit ridership and would not have a noticeable effect on transit LOS.

Project Transit Costs

Muni. The estimated 1985 (most recent available) net marginal cost (or increase in the deficit for Muni operations) per additional ride is $0.28./7/ This deficit-per-ride figure, because it is a marginal cost, is appropriate for small increases in Muni ridership (such as that requiring one or a few additional vehicle trips). Assessments of costs that would result from cumulative development require the inclusion of additional cost factors and may be best projected using average costs./8/ It is reasonable to conclude that average costs would be higher than marginal costs.



LEGEND

▒▒▒	BART AND MUNI METRO STATION	2,30,K,L	ROUTE DESIGNATION
·····	BART ROUTE	⟶	ROUTE DIRECTION
——	MUNI METRO ROUTE	*	BUS STOP (WITHIN ABOUT ONE BLOCK OF SITE)
- - - - -	BUS ROUTE	SM	SAMTRANS
·-·-·-	CABLE CAR ROUTE	GG	GOLDEN GATE TRANSIT
		AC	AC TRANSIT

0 FEET 500

299 SECOND STREET

FIGURE 27a
TRANSIT ROUTES IN THE PROJECT AREA

SOURCE: MUNI San Francisco Street and Transit Map, 1988;
MUNI Service Changes, October 1988

The project would generate about 101,300 peak-period, peak direction rides per year in the year 2000, which would generate a cost deficit to Muni of about $28,400, assuming that the cost per ride deficit remains the same./9/ The extent to which this project would offset this deficit through its contributions to the General Fund, the Transit Impact Development Fee, and sales tax revenues is not known. State and federal funds to Muni are decreasing, and the City is reviewing other options for increased revenues.

The sponsor would be required to pay a one-time Transit Impact Development Fee (TIDF) to finance the increased cost of Muni services necessitated by the project, at a rate of $5.00 per gross square foot of net new office construction. Based on the $5.00 rate, the project would yield about $1.16 million. The final determination of TIDF would be made on the basis of a more detailed review of architectural plans submitted to the City.

BART. For the year ending June 30, 1985, the average net operating deficit per passenger trip for BART was about $1.20./10/ On the basis of about 184,000 rides per year in the year 2000, the estimated annual BART deficit attributable to the project would be about $220,800, assuming that the cost per ride deficit is the same./11/ The project would generate a total of about $30,000 in revenues to BART, the 75% of the 0.5% transit sales tax allocated to BART. This amount does not include the remaining 25% of the 0.5% BART sales tax revenue distributed by MTC among BART, Muni and AC Transit. After subtraction of BART's revenues from sales and property taxes that would be generated by the project, the net operating deficit of BART due to the project would be about $190,800. BART's operating deficit per passenger is likely to decline in real terms as planned service improvements become operational in the future.

Traffic

Local Intersection Traffic

Traffic circulation patterns that existed in the project area at the time of the FEIR analysis have changed, affecting access routes to and from the proposed project. Clementina St., providing access to the on-site parking garage, has changed from two-way traffic flow to one-way eastbound (toward First St.). As a result of this

change, only inbound traffic to the project garage would use the Second St. intersections at Folsom and Howard Sts. During the p.m. peak hour, these intersections would continue to operate at Level of Service (LOS) "A," with unchanged volume-to-capacity (V/C) ratios (as shown in Table S-2, p. 49).

The Second and Harrison Sts. intersection, not analyzed in the FEIR, was analyzed to evaluate the effect of the primarily outbound traffic flow from the project garage. On the assumption that all p.m. peak-hour outbound vehicle trips would exit the project garage (as opposed to from other off-street parking locations), project effects at the Second and Harrison Sts. intersections would change the LOS during the p.m. peak hour from LOS "C" to LOS "D," with an increase in the volume-to-capacity (V/C) ratio, from 0.79 to 0.82 (as shown in Table S-2, p. 12). This would represent a worst-case scenario because parking at the site would change from mostly long-term spaces currently on the project site to mostly short-term parking spaces in the project garage, and because peak-hour traffic from the project would use parking at various locations in the vicinity and would tend to disperse among intersections throughout a larger area.

Freeway On-Ramp Analysis

Traffic operations at the First and Folsom Sts. intersection, one block north of the First and Harrison Sts. intersection at the Bay Bridge on-ramp, are shown in Table S-2. LOS descriptions are shown in Tables B-2 and B-4, FEIR Appendix B, pp. A-25 and A-27. The project would incrementally contribute to traffic at freeway on-ramps during the p.m. peak hour. The First and Folsom Sts. intersection, as described in the FEIR, currently operates in LOS "E/F" conditions during the p.m. peak hour, as a result of congestion on the Bay Bridge and traffic on First St. backing up from the First and Harrison Sts. intersection. Vehicles on Folsom St. are not constrained by queuing, and the LOS is "A/B." The designation of the intersection's LOS as "E/F" reflects delays experienced by drivers on First St., not the V/C ratio. Operations at LOS F represent jammed conditions. This LOS would not change due to the project; however, vehicles from the project could be expected to contribute to the existing jammed conditions at First and Folsom Streets.

TABLE S-2: PROJECTED PEAK-HOUR INTERSECTION VOLUME-TO-CAPACITY RATIOS (V/C) AND LEVELS OF SERVICE (LOS)/a/

Intersection	Existing V/C	Existing LOS	Existing + Project V/C	Existing + Project LOS	Mission Bay (2000) V/C	Mission Bay (2000) LOS
Second and Folsom Sts.	0.55/b/	A/b/	0.55	A	0.63/d/	B/d/
Second and Howard Sts.	0.57/b/	A/b,e/	0.57	A/e/	0.65/d/	B/d,e/
First and Folsom Sts.	/c/	E/F/c/	/c/	E/F/c/	/c/	F/c/
Second and Harrison Sts.	0.79/f/	C/f/	0.82	D/f/	0.98/f/	E/f/

/a/ LOS descriptions and relationship to V/C ratios are shown in FEIR Appendix B, p. A-25.
/b/ Based on traffic counts conducted by Environmental Science Associates in February 1989 and August 1989.
/c/ Intersection flow is obstructed by congestion and backups from the First and Harrison Sts. intersection with the Bay Bridge on-ramp. The LOS is due to congestion of the bridge approach, not on V/C ratio at First & Folsom Sts. intersection.
/d/ Not analyzed in the Mission Bay EIR; data from Downtown Plan EIR. The projected V/C ratio is consistent with the expected 20% increase in traffic volumes South of Market.
/e/ Turning movements on and off Howard St. operate at LOS C, as opposed to through traffic lanes which together operate at LOS A as shown. This condition would continue in the future.
/f/ Based on data from Mission Bay EIR.

SOURCE: Environmental Science Associates, Inc.

Freeway Corridor Analysis

The project would contribute to increases in traffic on the major freeways serving downtown San Francisco. Traffic generated by the project would increase total traffic on major freeways during the p.m. peak period and the p.m. peak hour by about 0.2% or less. Such increases would not be measurable against the day-to-day fluctuations in traffic volumes. Because the Bay Bridge p.m. peak-hour eastbound traffic flow is functionally at capacity, the travel demand from the project would not be expected to

increase the flows on the Bay Bridge in the peak hour; rather, the East Bay-bound auto traffic from the project would most likely compete with and possibly displace existing users of the Bay Bridge into later portions of the peak period. This competition for access would occur at the on-ramps to the Bay Bridge and any displacement of existing users to later time periods would depend on the time of arrival of project vehicles at the on-ramps. Some drivers would be expected to shift to carpools or transit as a result of cumulative displacement.

Pedestrian Movements

The project's primary entrance would be along the Second Street frontage. The project at full occupancy would generate about 745 net new pedestrian person trip-ends (pte) during the noon peak hour, and about 500 net new pedestrian pte during the p.m. peak hour. Pedestrian travel destinations were estimated on the basis of projected major travel modes. Pedestrian trips were assigned to sidewalks and crosswalks in the project vicinity on the basis of these destinations.

Existing and projected operating conditions on sidewalks and crosswalks were evaluated in the FEIR (pp. 104 to 105) in terms of pedestrian flow categories or regimen, which relate the density of pedestrians in a specific time period (pedestrians per foot of clear sidewalk width per minute) to the quality of pedestrian flow (the difficulty of maintaining walking paths and speeds on a sidewalk)./12/ FEIR Appendix B, Table B-1, p. A-23 shows the relationships among flow rates, walking speed, path choice, and interaction among pedestrians for each flow regime. SEIR Appendix B, Figure B-2, pp. A.7 - A.8 includes photographs depicting each flow regime. Typically, an upper limit for desirable conditions is 14 pedestrians per foot per minute (p/f/m), defined as crowded, although conditions as high as 18 p/f/m, a congested condition in which pedestrians are subjected to extreme crowding, have been documented./12/

These sidewalks and crosswalks were shown to operate in open conditions during both the noon peak hour and p.m. peak hour with the exception of unimpeded conditions along the site's Folsom St. sidewalk during the noon peak. With cumulative development by the year 2000, conditions on these sidewalks and crosswalks following addition of the project pedestrian travel would be expected to increase, but would still be in the open or unimpeded range during both the noon and p.m. peak hours. There would continue to be adequate facilities for pedestrians on the sidewalks adjacent to the project.

OFF-STREET PARKING AND LOADING REQUIREMENTS AND DEMAND

Parking

Parking demand was projected for the proposed 299 Second St. project on the basis of the estimated vehicle traffic generated by the project. The proposed project would create long-term parking demand for about 127 spaces (including 13 carpool/vanpool spaces) and short-term parking demand for 29 equivalent daily spaces, for a total parking demand of 156 spaces. Discounting for parking demand generated by existing uses on the site, the net additional parking demand generated by the project would be about 136 spaces. The proposed project would provide about 45,735 gross square feet of parking area, which the Department of City Planning estimates could accommodate about 213 vehicles with tandem valet operations./13/

Existing parking facilities on the site currently include a total of 82 parking spaces./14/ A total of 54 existing parking spaces are private, and reserved for the exclusive use by employees currently working in existing uses on the site. Of the 28 parking spaces made available to the general public, eight leases are currently valid and about 30% of the public parking is therefore considered long-term. About 70% of the public parking (28 spaces) is made available for short-term use.

The proposed project would eliminate 28 existing parking spaces available to the general public as independently accessible, self park spaces, resulting in excess parking capacity of about 29 equivalent daily spaces [total project demand (156) plus displaced public parking (28) minus proposed parking capacity (213) equals excess capacity (29)] beyond the estimated total parking demand. The project would meet project and displaced public parking demand and could help accommodate neighboring parking demand. Due to the use of space in excess of seven percent of the FAR for short-term parking, the project would result in an unmet demand for long-term parking for 67 spaces.

The proposed project is in the C-3 District, in which off-street parking is not required for commercial uses. The City Planning Code allows accessory parking up to seven percent of the gross floor area of the project. The 45,735 gross square feet of parking

proposed by the project sponsor would exceed this seven percent allowance (329,075 total project GSF x 0.07 = 23,035 GSF allowable for accessory parking). The proposed project would allocate at least 29 spaces for public short-term parking, and at least 13 spaces for carpools and vanpools. Parking provided in the proposed project for public use would be subject to a rate structure (City Planning Code Section 155(g)), which encourages short-term use and discourages all day parking.

Loading

Based upon data published in Center City Circulation Program: Pedestrian Circulation and Goods Movement, the new building would generate about 61 service vehicle stops per day./15/ Average hourly loading space needs are given in terms of spaces per hour per 10,000 sq. ft. of building space; average demand for the project would be about 3.0 spaces per hour and peak hourly demand would be 3.8 spaces.

Under the City Planning Code, the project would be required to provide three loading docks to serve the 267,800 sq. ft. of office space (0.1 spaces per 10,000 sq. ft. = 2.7 or 3 spaces for 267,800 sq. ft. of office space). (The Code allows the substitution of two service van spaces for each loading space, provided that at least one-half the required number of spaces are provided for trucks.) The project would also be required to provide one loading dock to serve the 15,580 sq. ft. of retail and restaurant uses. The project includes three full-size and two service van loading spaces, thus conforming with requirements of the City Planning Code.

Three loading spaces, a maximum of about 35 ft. in length, would be located on the Clementina St. side of the project, served by a curb cut of about 33 ft. The basement parking level would be reached via a ramp with an additional 28-ft. curb cut, also located on Clementina St. Two service van spaces would be included in the basement. The separation between the curb cuts would be about 25 ft. exceeding the minimum required separation of 20 ft.

The depths and other dimensions and number of loading spaces would conform to requirements as specified in Section 154(b) of the City Planning Code. Section 155(d) of the City Planning Code allows up to four freight loading and service vehicle spaces to be accessible directly from a service street or alley such as Clementina St. The project's three full-size loading docks and two service van spaces would be in conformance with the Code.

The potential for pedestrian-vehicle conflicts would be increased by the service vehicle traffic from the project crossing the Clementina St. sidewalk. Pedestrian volumes on Clementina St. are low and would continue to be (although they would increase), so the impact of project service-vehicle traffic would not be as great as it would be in a more heavily traveled pedestrian area, such as Folsom St.

Analysis of the design of the proposed Clementina St. loading/service area indicates that standard single-unit trucks would be able to enter the loading area by backing in from an eastbound position on Clementina St., as allowed by Department of Public Works standards.

DEMOLITION, EXCAVATION, AND CONSTRUCTION TRAFFIC

During the entire 18-month construction period, transportation impacts would result from truck movements to and from the site during demolition, excavation, and construction activity. Demolition and excavation would require about four months, and would generate an average of about 20 truck movements per day in and out of the project site, between 9:00 a.m. and 3:30 p.m.. Trucks would most likely use Harrison St. to Fourth St. to the freeway ramp at Fourth and Harrison Sts. to haul debris and excavation material to a disposal site in South San Francisco. Construction activities (steel erection and finishing) would generate an average of 10 truck movements per day during the 14-month period.

Construction truck access to the site would be from Folsom, Second and Clementina Sts. During the entire 18-month construction period, approximately 330 ft. of sidewalk fronting the project site on these streets would be closed. The curb lanes on Folsom and Second Sts. would be closed to provide a pedestrian detour. Lane and sidewalk closures are subject to Department of Public Works and Muni review.

Materials storage is proposed to be off-site, and would generate construction vehicle trips to the site. Temporary parking demand by construction workers' vehicles and impacts on local intersections from construction worker traffic would occur in proportion to the number of construction workers who would use automobiles.

The impact of construction truck traffic would be a lessening of the capacities of access streets and haul routes because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Lane blockage on Folsom and Second Sts. by queued trucks, if it were to occur, would reduce the capacity of these streets. The following Muni lines could be affected: 12 Folsom, 15 Third, and 42 Downtown Loop. A Golden Gate Transit line could also be affected. Blockage during times of peak traffic flow would have greater potential to create conflicts than during non-peak hours because of the greater peak-hour numbers of vehicles in adjacent lanes and vehicles (autos and buses) that would have to maneuver around the queued trucks. Any truck traffic from 7:00 a.m. to 9:00 a.m. or from 4:00 p.m. to 6:00 p.m. would coincide with peak-hour traffic, and would serve to worsen service levels. As noted above, truck traffic would be restricted to the hours of 9:00 a.m. to 3:30 p.m. which would avoid such peak-period effects.

If construction trucks used Clementina Street, these vehicles could back onto Second Street, affecting traffic flow along Second Street. Cumulative construction impacts would occur if the approved 222 Second Street development at the southwest corner of Second and Howard were under construction concurrently with the project. In particular, construction activity (parked trucks and equipment) on both sides of Second Street could reduce the traffic carrying capacity of this street. If either Folsom Street or Second Street were partially blocked, the Second/Folsom intersection would degrade from open flows (LOS "A") to capacity flows (LOS "E/F"). If Folsom Street were reduced to two lanes, unstable flows would result. Some phases of other developments' construction could also overlap with construction of the project. The approved 524 Howard Street and 101 Second Street developments are about two and one and one-half blocks, (respectively), from the project site. In the event of combined construction periods of the proposed project and one or more of these other projects, construction truck traffic would be expected to increase and traffic congestion and transit delays could increase. Should one project be completed and a second begin soon after, construction truck traffic impacts would be prolonged.

If an eight-foot walkway were maintained, existing pedestrian flows in the open and unimpeded ranges would be unchanged; however, an eight-foot walkway would not be maintained throughout the construction period and pedestrian flows would degrade throughout the construction period. To the extent that construction activity would encroach onto sidewalk areas (reducing the sidewalk width available to pedestrians), pedestrian flows would be disrupted.

NOTES - Transportation

/1/ San Francisco Department of City Planning, Transportation Guidelines for Environmental Impact Review: Transportation Impacts, September 1983. This document describes the procedure used to calculate travel demand from the project. Daily trip generation rates of 18.1 person trip-ends (pte) per 1,000 gross sq. ft. of office space and 150 pte per 1,000 gross sq. ft. of retail space were used to generate travel from the project. The two trip generation rates are for independent land uses. When used to generate travel from more than one land use on the same site the rates may overestimate total travel to the site since a portion of the travel from each of the land uses may occur between land uses on the site and not leave the site. Such trips are referred to as "linked trips." The calculations for this project have not been discounted to account for linked trips and thus present a "worst-case" scenario.

/2/ Deduction of existing travel demand is per the Transportation Guidelines.

/3/ The percentage of travel occurring in the peak period and the peak hour are from the Transportation Guidelines. Total travel during each of the periods has been adjusted to show only outbound (leaving the downtown area in the peak commute direction) travel. The outbound travel consists of all of the work-related travel and one-half of the other (non-work) travel.

/4/ The year 2000 modal splits account for changes in travel behavior which are assumed to occur as a result of growth in Downtown & Vicinity, as described in Mission Bay EIR, 86.505E, Vol. II, pp. VI.E.53-54.

/5/ San Francisco Department of City Planning, Transportation, an Element of the Master Plan, January 1983.

/6/ Weis, Will, Chief Engineer Rail and Transit Division, Morrison-Knudsen Engineers, Inc., telephone conversation, December 12, 1989.

/7/ This deficit-per-ride figure is based upon information provided by a recent MUNI cost analysis constructed by PUC staff and consultants showing that the appropriate figure for fiscal year 84-85 was approximately $0.28 per additional MUNI trip taken at peak service hours. Using the updated figure the annual cost deficit to MUNI would be about $28,400. Leonard Tom, Administrator, Transit Impact Development Fee, San Francisco Public Utilities Commission, letter, January 7, 1989.

/8/ According to Muni, the appropriate technique for determining the costs to Muni of cumulative development is an average cost analysis which would include both capital and operating costs. Application of this technique, however, is limited because relevant capital cost data are not available from Muni. Further, capital costs are difficult to allocate on a person-trip basis as capital expenditures occur from time to time in large amounts, not necessarily annually. The established method of allocating capital costs is through depreciation, which is based on historical depreciation costs, not replacement costs. Such an estimate would be low in comparison with the costs of new capital improvements required for a single passenger trip. The use of existing capital cost data would underestimate future capital cost needs. Existing Muni accounting statistics do not enable future capital costs to be calculated on a per passenger trip basis (Bruce Bernhard, Muni Chief Financial Analyst, telephone communication, March 25, 1985).

/9/ This conclusion should be qualified because the Muni deficit-per-passenger-trip figure is based on 1984-85 data, and because the total project-generated deficit is calculated only for those riders who use Muni as their primary mode of transportation, excluding riders who would use a combination of transportation carriers, such as Muni and Caltrain. More recent data that would allow a more precise estimate of costs are not available. The deficit due to the project would be: 402 peak-period trips per day x 252 working days per year x $0.28 deficit = $28,365. The cost deficit estimate is based on the assumption that essentially all vehicles are operating at capacity during peak periods and additional riders would require new vehicle trips. It was assumed that during off-peak periods, all vehicles operate with excess capacity, resulting in an average off-peak marginal cost of zero. These cost estimates are appropriate for project costs to Muni of a single office building. Assessments of costs that would result from cumulative development require the inclusion of additional cost factors and may be best projected using average cost data. Muni does not have data that would enable it to estimate the average cost per passenger trip. It is reasonable to conclude that average costs would be significantly higher than marginal costs.

/10/ Ward Belding, Supervisor, Office of Research, BART, telephone conversation, September 27, 1985. The $1.20 average deficit per trip is based on all operating costs and revenues for the entire system and is not specific to San Francisco trips. Available data from BART do not enable peak and non-peak period costs to be differentiated.

/11/ 730 BART trips per day x 252 days/year x $1.20 = $220,800.

/12/ Pushkarev and Zupan, 1975, Urban Space for Pedestrians, Cambridge, Mass., pp. 85-117.

/13/ Using the Department of City Planning's standard of about 215 gross square feet per vehicle for tandem valet parking in downtown San Francisco, per May 4, 1989 memorandum. Dean L. Macris to City Planning Commission.

/14/ This reflects the actual vehicular capacity of the existing lots at any time, as currently operated as self-park, and not the total number of vehicles or individuals who may use the facility. For long-term parking, it is recognized that leasing operations often "oversubscribe" parking facilities, selling more leases than the number of vehicles the facility can accommodate at one time, to take care of non-daily users who still wish a long-term lease, and those who are in-and-out during the course of the day. As a result a greater number of parking leases or users may be displaced than the actual vehicular capacity of the facility.

/15/ San Francisco Department of City Planning, Center City Circulation and Goods Movement, Working Papers 1, 2 and 3, and Final Report, 1980.

F. AIR QUALITY

The following text replaces the Air Quality Impacts text on FEIR pp. 116-122, to include updated transportation data as part of the air quality analysis, and new information from the Mission Bay EIR and South of Market EIR cumulative analyses. Tables S-3 and S-4 replace FEIR Tables 9 and 10.

CUMULATIVE CONTEXT

The Downtown Plan EIR analyzed the effects of employment growth in the C-3 District on regional air quality in the future (Downtown Plan EIR, pp. IV.I.1-19). Since that EIR was certified there have been changes in some air quality impact analysis methods and data. The changes are reflected in the Mission Bay and South of Market Plan EIRs. This material is incorporated by reference and summarized here. In general, the differences are new emission factors (these are revised periodically by the Bay Area Air Quality Management District), a new standard for determining possible significant air quality effects, and the continued failure of the Bay Area to attain federal ozone and carbon monoxide standards. Other information in the Downtown Plan EIR remains applicable and is an appropriate basis for analyzing cumulative impacts of downtown growth, of which the proposed project is a part.

Motor vehicle exhaust emissions would be the primary source of air pollutants in the Downtown & Vicinity. These emissions would affect local and regional air quality. Ozone and carbon monoxide concentrations occasionally violate air quality standards at some locations in the Bay Area. Emissions of hydrocarbons and nitrogen dioxide, precursors of ozone, would contribute to regional ozone concentrations. Emissions would also add to local carbon monoxide concentrations at congested intersections in the vicinity.

The Bay Area Air Quality Management District considers projects that produce a net increase in vehicle emissions greater than one percent of countywide transportation emissions to have a potentially significant impact on air quality. By buildout in the year 2020, emissions of carbon monoxide, hydrocarbons, and nitrogen oxides from the Mission Bay project would exceed one percent of countywide transportation emissions under all Alternatives. (For buildout, year 2000 emission factors were used and emissions were compared with countywide transportation emissions projected for 2000, as emission factors and inventories beyond 2000 are not available.)

(For more detail on air pollutant emissions, see Mission Bay EIR, Vol. II, pp. VI.F.12-17.)

Motor vehicles are the major source of carbon monoxide, and concentrations can build up at congested intersections. Computer modeling of carbon monoxide concentrations at eight of the busiest intersections in the Downtown suggests that state and federal

standards for eight-hour average concentrations (9 parts per million [ppm]) currently may be violated on occasion at the intersection of Sixth and Brannan Streets (13.4 ppm) and at the intersection of Third and Berry Streets (9.2 ppm). None of the eight intersections currently violate state or federal one-hour standards (20 ppm and 35 ppm, respectively). Carbon monoxide concentrations are expected to improve throughout the region due primarily to better vehicle emission controls. Carbon monoxide concentrations at the eight intersections, even with Mission Bay and cumulative growth in traffic, are projected to decrease. No violations of state or federal carbon monoxide standards are expected in 2000 or at buildout of Mission Bay in 2020.

(For more detail on intersection carbon monoxide concentrations in the South of Market area, see Mission Bay EIR, Volume II, pp. VI.F.9-10 and 17-18, and Table VI.F.4, p. VI.F.19; South of Market EIR pp. 140-142 and Table 10, p. 143.)

The 1982 Bay Area Air Quality Management Plan established schedules and strategies to comply with federal ozone and carbon monoxide standards established under the Clean Air Act by December 31, 1987. The deadline has now passed, and the Bay Area remains a non-attainment area for ozone and carbon monoxide (standards are occasionally violated). Congress is considering additional amendments to the Clean Air Act to address those areas of the country that remain in non-attainment, and a new regional plan may be required. All Alternatives in the Mission Bay EIR would be consistent with 1982 Plan strategies to reduce motor vehicle trips by encouraging development in urban service areas, mixed-use and infill development, and rehabilitation and reuse of existing buildings. All Alternatives considered in the Mission Bay EIR represent more intensive use of the Project Area than assumed under the 1982 Plan, so Mission Bay would be inconsistent with the Plan's land use and population projections. The South of Market growth would not conflict with the 1982 Plan. (See Mission Bay EIR Volume II, pp. VI.F.19-20; South of Market EIR, pp. 137, 139, and 142-144.)

As noted in the Downtown Plan EIR, emissions associated with C-3 District development are not expected to increase ozone concentrations and thus would not conflict with the 1982 Plan objectives. (See Downtown Plan EIR, p. IV.I.11.) Downtown development, including Mission Bay, is not expected to conflict with 1982 Plan objectives regarding carbon monoxide. This is based on data collected since the

Downtown Plan EIR was completed (see, e.g., 600 California Street Final EIR, pp. 128-129), and on the more recent air quality analysis in the Mission Bay EIR.

Analysis of additional air quality impacts of the stadium/arena that are under consideration at Second, Third and King Streets; and Seventh and Townsend Streets, respectively, indicate that no violations of one-hour curbside carbon monoxide (CO) standard would be anticipated. This is because local traffic impacts of the stadium/arena would not overlap with the 4:00 to 6:00 p.m. peak commute period. However, the occurrence of a major stadium/arena event before or after the commute period could extend the duration of congested conditions at local intersections such that there could be violations of the eight-hour CO standard. This would be most likely to occur during the winter season, when meteorological conditions are most conducive to producing inversion layers that increase local CO concentrations. Since the baseball season runs from mid-April to no later than mid-October, before the start of the winter CO season, an eight-hour CO violation is most likely to occur if there were a special (non-baseball) sellout event at the stadium. Given that the stadium is proposed as an open air facility, it is not likely there would be numerous sellout events scheduled there during the winter months.

By virtue of the fact that a proposed stadium/arena was not included in the land use projections upon which the 1982 Bay Area Plan is based, the stadium/arena would be inconsistent with the Plan itself. As noted on p. 20, stadium impacts are not expected to occur based on defeat of the associated ballot measure in November 1989. Therefore, this analysis is conservative.

PROJECT EFFECTS

Upon completion, the project would affect air quality in two ways. Emissions would be generated by project-related traffic, and by combustion of natural gas for building space and water heating. Transportation sources would account for over 95% of project-related emissions.

Curbside CO concentrations at selected intersections that would be affected by project-generated traffic and by cumulative development traffic were projected for conservative conditions, and are compared with ambient standards in Table S-3, p. 60.

TABLE S-3: EXISTING AND PROJECTED CURBSIDE CARBON MONOXIDE CONCENTRATIONS AT SELECTED INTERSECTIONS

		Concentrations (ppm)/a/	
Intersection	Averaging Time	1989	Mission Bay EIR 2000/b/
Second and Howard	1-hour	9.6	8.4
	8-hour	6.7	5.9
Second and Folsom	1-hour	9.6	8.4
	8-hour	6.7	5.9
First and Folsom	1-hour	10.3	8.4
	8-hour	7.2	5.9

/a/ Calculations for all scenarios were made using a revised version of the Modified Linear Rollback (MLR) method described in the Mission Bay EIR. Background concentrations were calculated to be 5.8 ppm for eight hours in 1989, and 5.0 ppm for eight hours in 2000. Any underlined values would be in violation of the state or federal CO standards. The one-hour state standard is 20 ppm, the one-hour federal standard is 35 ppm, and the eight hour state and federal standards are 9 ppm. Emission rates were derived from the California Air Resources Board EMFAC7D computer model, from the BAAQMD's Guidelines, revised April 1988.

/b/ Based on the growth forecast methodology contained in the Mission Bay EIR. The project would be contained within this forecast.

SOURCE: Environmental Science Associates, Inc.

In 2000, the average vehicle is expected to emit less carbon monoxide (CO) than in 1985 due to ongoing state and federal emissions controls.

Currently (1989), the eight-hour CO concentrations at the three selected intersections are not estimated to violate air quality standards. CO concentrations are predicted to be less in 2000 than in 1989 and would not violate the standards at these intersections in this future scenario.

Table S-4 shows projected daily emissions of pollutants in the year 2000 from project-generated traffic, and compares them with San Francisco County transportation-related emissions (Year 2000) and total transportation-related emissions in the Bay Area. The project would contribute less than 0.1% to the transportation-related emissions inventory for San Francisco in 2000.

TABLE S-4: PROJECTED DAILY TRANSPORTATION-RELATED POLLUTANT EMISSIONS

	(tons per day)/a/		
Pollutant	Project 2000/a,b/	SF County 2001/c/	Bay Area 2000/c/
Hydrocarbons	0.005	14	160
Nitrogen Oxides	0.010	22	270
Carbon Monoxide	0.125	120	1,400
PM_{10}	0.009	28	310
Sulfur Oxides/d/	0.002	28	83

/a/ Project emissions were calculated using BAAQMD EMFAC7D vehicle emission factors. Emissions of HC, NOx, and CO include an assumed six minutes of idling time per vehicle trip. Emissions of particulates include dust disturbed from roadway surfaces.
/b/ Based upon a weighted daily average of 7,370 vehicle-miles traveled.
/c/ San Francisco County and Bay Area emissions correspond only to transportation-related emissions based on BAAQMD Emissions Inventory Summary Report (August 1987), and year 2000 emissions inventory for the Bay Area provided by Tirlochan Mangat, Manager, Special Projects Section, BAAQMD.
/d/ Sulfur oxides and sulfur dioxides are assumed to be interchangeable.

SOURCE: Environmental Science Associates, Inc.

Emissions of particulates resulting from construction and from vehicle trips generated by the project and cumulative development would increase particulate concentrations, which could increase the frequency of particulate standard violations in San Francisco, with concomitant health effects and reduced visibility./1/

NOTE - Air Quality

/1/ State standards for particulate matter changed in 1983 and federal standards changed in 1987 to concentrate on fine particulate matter which has been demonstrated to have health implications when inhaled (PM_{10}). Only those particulates 10 microns or less in size are measured under the PM_{10} standard. The BAAQMD (Thomas Perardi) has stated that TSP includes about 50-60% of particulates of 10 microns or less; thus, the TSP standards are generally equivalent to the PM_{10} standards. BAAQMD is presently monitoring PM_{10} at seven Bay Area monitoring stations, including the 16th and Arkansas station in San Francisco.

G. ENERGY

The first sentence of paragraph one, FEIR p. 125, is revised to provide an updated citation (revisions are underlined):

> New buildings in San Francisco are required to conform to energy conservation standards specified by Title 24 of the California Code of Regulations.

The second paragraph, FEIR p. 131, is deleted.

H. POPULATION AND EMPLOYMENT

The following text replaces the Employment and Housing Impacts discussion, FEIR pp. 134-145.

CITY AND REGIONAL POPULATION AND EMPLOYMENT

Housing Demand and Population Growth

The Mission Bay and South of Market Plan EIRs discuss residence patterns in a City-wide and regional context, in relation to housing demand from growth of employment in the Greater Downtown and Mission Bay. San Francisco employment growth will contribute to housing demand throughout the region, as not all San Francisco workers will live in the City. If housing is built in the Mission Bay and South of Market areas, more City workers could live in the City; San Francisco would contribute less to the regional housing market.

Regardless of the type of development in Mission Bay and in South of Market, the importance of San Francisco employment as a factor affecting regional housing demand will decline over time because more housing will be added in the City relative to job growth, compared to the situation in the past. As housing and the labor force continue to grow more rapidly outside San Francisco, people working in San Francisco will represent the same or a smaller percentage of the employed people living elsewhere in the region. San Francisco workers will require about the same share of the region's housing in the future as they did in the early 1980's. San Francisco's

effects on the regional housing market will vary in the future. City workers could become more important to the housing market in some close-in communities in western parts of the East Bay and east of the hills along BART corridors, in northern San Mateo County and parts of Marin. Nevertheless, the price of housing in San Francisco is expected to remain high relative to other areas in the region. This, combined with continued demand for lower cost housing, would continue to create upward pressure on costs/rents of existing units. (See Mission Bay EIR, Vol. II, pp. VI.C.83-VI.C.84.)

About half of the people working in Greater Downtown San Francisco would live in the City in 2000 and 2020. The rest would live in communities throughout the rest of the region: about 30% in the East Bay, 13% in the Peninsula and in the South Bay and about 8% in the North Bay. Greater Downtown workers living in the City would represent about 57% of the City's employed residents. People working downtown would represent a considerably smaller proportion (about 4-9%) of the employed residents of other Bay Area communities. (See Mission Bay EIR, Vol. II, pp. VI.C.56-61 and 92-97; South of Market EIR pp. 66-67.)

Employment Growth

Employment patterns in the City and the region in the future, particularly in the Greater Downtown, depend somewhat on the development plan chosen and built in the Mission Bay area. The amount of employment growth forecast in the Bay Region would not change, but the location of jobs would be different. South of Market area employment growth is forecast to be relatively small compared to the rest of downtown and would have little influence on growth patterns. This information, from the Mission Bay and South of Market Plan EIRs, is summarized below.

Mission Bay Alternative A, with a combination of residential and commercial uses, would provide about 25,000 job opportunities. Citywide employment, including South of Market and the rest of the City, would grow by about 210,000 jobs between 1985 and 2020 under this scenario. Mission Bay Alternative B includes predominantly residential and open space uses and would provide about 6,000 jobs; citywide employment would grow by about 200,000 jobs and more of this growth would occur in the downtown and in the rest of the City between 1985 and 2020 than under Mission Bay Alternative A. Mission Bay Alternative N, with predominantly commercial and industrial development and no new

housing, would contribute to citywide employment growth of about 207,000 jobs during the same time frame. The South of Market area would contribute about 24,000 jobs to these totals.

The C-3 District would contribute different amounts to the Citywide employment totals, depending on Mission Bay development at buildout (2020, about 360,800 jobs if Mission Bay Alternative A were the buildout scenario; about 362,200 jobs if Alternative B were the Mission Bay development picture; and about 362,200 jobs if the Mission Bay area were developed under present zoning as in Alternative N.

Forecasts of employment in the year 2000 in the Downtown & Vicinity and in the City as a whole have been revised since the Downtown Plan EIR was prepared. The Mission Bay and South of Market Plan EIRs provide these updated forecasts. In summary, the C-3 District employment growth would be about 69,000 jobs between 1985 and 2000, compared to a forecast of about 91,000 new jobs between 1984 and 2000 shown in the Downtown Plan EIR. However, it is more appropriate to compare forecast of change from 1981 to 2000, as 1981 base data are the same for both the Downtown Plan EIR and the two more recent EIRs. For that period, the Downtown Plan EIR shows growth of about 106,000 jobs in the C-3 District, while the new forecasts show growth of about 64,000 jobs. (See Mission Bay EIR, Vol. II, pp. VI.B.53-79, and Vol. III, p. XIV.B.24-26; South of Market EIR, Appendix B, pp. B.10 to B.14; and Downtown Plan EIR pp. IV.C.29-61.)

Employment Densities

Employment densities -- the average number of square feet per person in a building -- were recalculated based on the revised space and employment forecasts for the larger area in the Downtown & Vicinity prepared for the Mission Bay EIR. The relative reduction in growth compared to the Downtown Plan EIR forecasts results in a reduction in density, or an increase in the average square feet per person in office uses from 268 sq. ft. to about 294 sq. ft. in the year 2000. (See especially, Mission Bay EIR Vol. II, pp. VI.B.53-56 and VI.B.60-62.)

Use of this density for analysis of individual office projects would reduce the number of persons in the proposed project compared to that shown by use of the Downtown Plan EIR density factor, reducing proportionally the project's contribution to those cumulative impacts caused by employment growth in downtown. The project-related

employment was not recalculated because the difference in any one building is relatively small (10-12% less employment), because the difference is nearly unmeasurable in relation to cumulative impacts, and because use of the smaller square footage (higher density) provides a more conservative estimate of the project's impacts.

PROJECT EMPLOYMENT

Demolition of the two commercial buildings would result in the displacement of about 80 employees. There are no on-site employees for the parking lots.

At full operation, the project would accommodate about 1,080 workers on the site, consisting of about 1,000 office workers, 45 retail workers, 24 building maintenance/security workers and 9 parking operators./1/ The additional space represented by the project would accommodate about 1,000 additional employees in the C-3 District, representing about 0.25% or less of the C-3 total employment in 2000 and 2020. The impact would be about 0.6% of citywide growth between 1985 and 2000.

The project would accommodate growth of office and retail employment in the C-3 District. It is expected that office businesses providing management, technical, and professional services would occupy the project office space. Over time, the project is expected to be characteristic of all C-3 District office buildings occupied by a mix of corporate and business service firms. Therefore, average overall density factors for the C-3 District (gross sq. ft. of space per employee) are used to estimate the employment characteristics of the project, as opposed to using any particular tenants which may or may not remain in the building over the long-term.

About 2,330 additional jobs in the Bay Area would result from the employment multiplier effect of project operation./2/ Construction of the new project would require about 220 person-years of construction labor. Construction labor for the project would represent about 0.2% of the total person years of construction labor forecast for the C-3 District from 1984 through 2000. About 400 additional person-years of employment would be generated in the Bay Area, as a result of the multiplier effect of project construction./2/

NOTES - Population and Employment

/1/ Employment is calculated from the estimates of gross sq. ft. of building space from project description. Based on C-3 District employment density factors from the San Francisco Department of City Planning, Downtown Plan EIR, EE81.3, certified October 18, 1984 (268 sq. ft. per office employee).

/2/ Indirect employment projections are based on A 1980 Hybrid Input-Output Model for the San Francisco Bay Region, Association of Bay Area Governments, April 1984. A multiplier of 2.25 was used for office jobs, 0.71 for retail jobs and 1.33 for maintenance jobs. The multipliers used are averages of the Type I and Type II employment multipliers contained in this model.

I. CONSTRUCTION NOISE

The following is added as a new first sentence to the first paragraph, FEIR p. 146:

> Ambient noise in the project vicinity is typical of noise levels in downtown San Francisco, which are dominated by vehicular traffic, including trucks, cars, Muni buses and emergency vehicles.

The following replaces the first sentence, paragraph one, FEIR p. 149 (revisions are underlined):

> Pile driving (discussed below) may or may not be used during construction of the project. During the use of impact wrenches (approximately eight months), the noisiest construction operation after pile driving, noise levels outside the Pacific Bell, Marathon Plaza, 75 Hawthorne, and other buildings adjacent to the site would reach as high as 89 dBA.

The following three paragraphs are added to FEIR p. 149, after the last paragraph:

> If pile driving were used vibrations from the impact during pile driving would be felt in adjacent and nearby buildings. These vibrations have been found to be more disturbing to some people than high noise levels. Noise at levels greater than 60 dBA can interfere with normal speech and concentration, noise levels greater than 70 dBA would require workers to close windows or shout to communicate. General stress reaction has been observed in humans exposed to brief sounds of 75 dBA./2a/ At noise levels of 85 dBA, normal conversation is extremely difficult, and sleep or rest virtually impossible. Intermittent noises, such as pile driving noise, reduce perception of control over the environment. This perceived loss of control frequently results in a depressed mood and depressed motivation. It has also been shown that high noise levels can lead to elevated blood pressure./2a/ Repeated impulse and intermittent sounds of high level appear more likely to disrupt performance than continuous or steady sounds of comparable level./2c/

The U.S. Environmental Protection Agency (EPA) has determined that noise levels of 70 dBA, L_{eq} over a 24-hour day, assuming a 40-year exposure period, are the maximum level at which conservation of hearing is ensured for virtually all of the population./2d,2e/. Assuming that pile driving would occur for no more than eight hours per day over a period of less than three months, the maximum noise level would be six dBA greater than the maximum noise levels of 90 dBA expected during pile driving at land uses adjacent to the project site, with windows closed. No criteria have been established for non-auditory, psychological effects, such as elevated blood pressure due to exposure to high noise levels. However, studies suggest that such effects can occur at noise levels below criteria thresholds for permanent hearing loss./2f/ Thus, while occupants of buildings adjacent to the project site would not have hearing loss, they may experience non-auditory psychological effects.

Noise generated during pile driving could be reduced by erecting barriers around the project site. Barriers may include such items as berms, walls, etc., that would affect sound propagation by interrupting it and creating and "acoustic shadow zone." The more solid, high and wide that a noise barrier is, the more effectively it would attenuate noise. A wall may provide maximum noise reductions up to 20 dBA, while a berm may reduce noise levels a maximum of 23 dBA./2g/

The following seven footnotes are added after footnote /2/, FEIR p. 151:

/2a/ The Central Institute for the Deaf, "Effects of Noise on People", U.S. Environmental Protection Agency, 1971.

/2b/ Sheldon Cohen, et al., "Cardiovascular and Behavioral Effects of Community Noise", American Scientist, Volume 69, October 1981.

/2c/ National Institute for Occupational Safety and Health, "Occupational Exposure to Noise", U.S. Department of Health, Education and Welfare, 1972.

/2d/ U.S. Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974.

/2e/ L_{eq} is the equivalent steady-state sound level which in a stated period of time would contain the same acoustic energy as the time-varying sound level during the same time period.

/2f/ U.S. Environmental Protection Agency, Noise Effects Handbook, July 1981.

/2g/ U.S. Department of Transportation, Federal Highway Administration, Highway Noise, December 1978.

The following paragraph is added to the end of FEIR p. 149 (after other added text):

> Three additional projects, 222 Second St. (at Howard), 524 Howard (at First), and 101 Second St. (at Mission), have been approved in the project area. Should these projects' construction schedules coincide with that of the proposed project, noise levels would be expected to increase by two to five dBA in the project vicinity. This would generally be audible (depending on the loudness of the activity) and would probably be annoying, since noise from construction of one project would be annoying to the nearest receptors (those within 100 ft.). Should one project be completed and a second begin soon after, noise impacts would be prolonged.

J. SEISMICITY

The Downtown Plan EIR includes information on Seismic Safety issues in the C-3 District of downtown. That information remains current. The South of Market Plan EIR provides similar information for that area, as does the Mission Bay EIR for its project area. These EIRs do not provide any new data about seismic issues that establish a need for revisions in the Downtown Plan EIR information or conclusions.

In summary, the Downtown & Vicinity, like other parts of San Francisco and the Bay Area, is subject to potentially large earthquakes from the San Andreas and Hayward faults. Relatively more of the land in Downtown & Vicinity is subject to violent groundshaking intensity than the rest of the City because the eastern edge of the area, including nearly all of Mission Bay, is built on filled land. Employment growth such as that expected in the proposed new building, would result in larger numbers of persons being exposed in the future to earthquake hazards if a seismic event occurred during the work day. New buildings are subject to more stringent building and structural standards than are older buildings. Therefore, persons working (or residing) in buildings such as the proposed project would be relatively safer than those in some older existing buildings. However, glass, and in some cases, building cladding, is expected to endanger those on the streets and sidewalks. The bridges leading to/from San Francisco are expected to be closed for over three days due to damaged access ramps. The same would be true of the freeways heading south to the Peninsula. Muni and Caltrain would be out of service for some time, and power outages would occur for at least one or two days. (See Downtown Plan EIR pp. IV.K.1-17a; Mission Bay EIR, Vol. II, pp. VI.K.11-15 and 33-43; South of Market EIR, pp. 154-174.)

An earthquake with an estimated magnitude of 7.1 on the Richter Scale occurred in the Bay Area in October 1989. The earthquake lasted about 15 seconds and caused damage in the epicentral region in Santa Cruz, Watsonville, Hollister and Los Gatos. San Francisco and other areas, as far as 50 miles from the epicenter, were also damaged.

Casualties and damage were caused by falling objects, collapsed structures, fire and miscellaneous injuries (such as heart attacks). Most of the casualties and damage were a result of ground shaking which caused some freeway structures to collapse and masonry structures (including brick chimneys) to fail. Wood-frame buildings were jolted off their foundations in areas near the epicenter.

Ground failure also occurred, most notably in the Santa Cruz area near the epicenter. Landslides resulted in road closures and damage to structures. Liquefaction and ground settlement occurred in places further from the epicenter (for example at the Marina District of San Francisco). Fires resulted from ruptured utility lines. The type of damage caused by the earthquake is typical of moderate sized earthquakes. Damage that occurred at distances up to 50 miles from the epicenter is evidence that the project area may be adversely affected by earthquakes occurring on any of the region's major faults.

Damage in the Mission Bay area was relatively minor compared to other areas of the City, although that is not necessarily indicative of what would happen after an earthquake, should one occur, after Mission Bay was built. Damage in the South of Market area was basically confined to buildings constructed prior to 1970. Both of San Francisco's double-decked freeway structures were damaged but did not collapse. Greater damage was predicted in the Mission Bay EIR, which analyzed seismic impacts for an 8.4 magnitude earthquake on the Richter scale on the San Andreas Fault, a 6.9 magnitude on the Hayward Fault, a 7.3 magnitude on the Calaveras Fault, and a 7.1 magnitude on the San Gregorio Fault, than occurred in this 1989 earthquake. An earthquake of similar magnitude (or larger) to the 1989 earthquake could occur on the San Andreas, Hayward, Calaveras and Greenville faults with impacts more like those described in the Mission Bay EIR due to the locations of these faults in relation to San Francisco. Other active faults in the region could produce smaller earthquakes.

K. GROWTH INDUCEMENT

The following paragraph is added after the last paragraph, FEIR p. 154:

> The project would be built in a developed urban area, and no expansion to the municipal infrastructure not already under construction would be required to accommodate new development and increased employment due to, or induced by, the project.

VI. MITIGATION MEASURES PROPOSED TO MINIMIZE POTENTIAL ADVERSE IMPACTS OF THE PROJECT

CULTURAL RESOURCES

The following mitigation measure replaces the Cultural Resources measures on FEIR pp. 155-155a, to provide the most current approach to such mitigation:

MEASURES PROPOSED AS PART OF THE PROJECT

- The sponsor would retain the services of an archaeologist. The Environmental Review Officer (ERO) in consultation with the President of the Landmarks Preservation Advisory Board (LPAB) and the archaeologist would determine whether the archaeologist should instruct all excavation and foundation crews on the project site of the potential for discovery of cultural and historic artifacts, and the procedures to be followed if such artifacts are uncovered.

  Given the strong possibility of encountering the remains of cultural or historic artifacts within the project site, prior to the commencement of foundation excavations the project sponsor would undertake a program of archaeological testing. This would consist of the placement of a series of mechanical, exploratory borings or of other similar on-site testing methods. The archaeologist would supervise the testing at the site to determine the probability of finding cultural and historical remains. At the completion of the archaeological testing program, the archaeologist would submit three copies of a written report first and directly to the ERO, with a copy to the project sponsor, which describes the findings, assesses their significance and proposes appropriate recommendations for any additional procedures necessary for the mitigation of adverse impacts to cultural resources determined to be significant.

  An historical archaeologist would be present during site excavation and would record observations in a permanent log. The ERO would also require cooperation of the project sponsor in assisting such further investigations on site as may be appropriate prior to or during project excavation, even if this results in a delay in excavation activities.

- Should archaeological resources be found following commencement of excavation activities, the archaeologist would assess the significance of the find, and immediately report to the ERO and the President of the LPAB. Upon receiving the advice of the consultants and the LPAB, the ERO would recommend specific mitigation measures, if necessary. Excavation or construction activities following the preconstruction archaeological testing program which might damage the discovered cultural resources would be suspended for a maximum of four weeks (cumulatively for all instances where the ERO has required a delay in excavation or construction) to permit inspection, recommendation and retrieval, if appropriate.

- Following site clearance, an appropriate security program would be implemented to prevent looting. Any discovered cultural artifacts assessed as significant by the archaeologist upon concurrence by the ERO and the President of the LPAB would be placed in an appropriate repository as determined by the ERO. Copies of the reports prepared according to these mitigation measures would be sent to the California Archaeological Site Survey Office at Sonoma State University along with three copies to the ERO.

TRANSPORTATION

The first Transportation mitigation measure on FEIR pp. 155a-155b is deleted, and the sixth measure on FEIR p. 156 is deleted and replaced by the following two measures:

- As required by Section 163 of the City Planning Code, a member of the building management staff would be designated as a transportation broker to coordinate measures that are part of a transportation management program, such as: general commute option marketing and incentives; encouraging a flexible time system for employee working hours (to be developed by project tenants in consultation with the Department of City Planning) to reduce peak-period congestion by a planned spreading of employee arrivals and departures; encouraging transit use through the on-site sale of BART, Muni, and other carriers' passes to employees; encouraging employee carpool and vanpool systems in cooperation with RIDES for Bay Area commuters by providing a central clearinghouse for carpool and vanpool information; and conducting periodic surveys of building tenants and employees to monitor progress and evaluate program effectiveness. The transportation management program and responsibilities of the provider of the transportation brokerage services would be detailed in a Memorandum of Agreement between the project sponsor and the Department, which would be executed prior to issuance of an occupancy certificate. The Project Sponsor would include in all leases for office space a provision requiring tenant employers to cooperate in, and assist in carrying out the transportation management program.

- Off-street parking spaces would be controlled to assure priority for vehicles driven by the physically handicapped, vehicles using spaces for short-term rather than all-day parking, and vanpool and carpool vehicles. All parking spaces made available to the general public would be subject to rates under the provisions of City Planning Code Section 155(g) that encourage short-term use of said spaces and discourage all-day parking.

The first full mitigation measure, FEIR p. 156, is revised to permit construction truck movements until 3:30 p.m., rather than 4:00 p.m.:

- During the construction period, construction truck movement would be permitted only between 9:00 a.m. and 3:30 p.m. to minimize peak-hour traffic conflicts and to accommodate queueing of Muni buses prior to the peak hours. The project sponsor and construction contractor would meet the Traffic Engineering Division of the Bureau of Engineering of the Department of Public Works, the Fire Department, Muni and th Department of City Planning to determine feasible traffic mitigation measures to reduce traffic congestion during construction of this project and other nearby projects.

The following measure replaces the seventh Transportation Mitigation Measure, FEIR p. 156:

- The project sponsor would contribute funds for maintaining and augmenting transportation services in an amount proportionate to the demand created by the project, as provided by the Board of Supervisors Ordinance Number 224-81.

The following measures are added after the last Transportation Mitigation Measure on FEIR p. 157:

MEASURES UNDER CONSIDERATION BY PROJECT SPONSOR

- The parking driveway could include warning devices (lighted signs and noise-emitting devices) to alert pedestrians to vehicles exiting the structure. The sponsor will make a decision on this measure during final design stage based on design criteria and cost.

- While subsurface sidewalk vaults are discouraged, should they be needed, the project sponsor would design subsurface sidewalk vaults to allow for possible future widening of adjacent streets. Vault design would be of sufficient strength to carry maximum vehicular live and dynamic loads. Design of the vault area to accommodate street trees could also be made, subject to Department of Public Works approval. In addition, should vaults exist or be installed as part of the project, the project sponsor would accommodate and pay for the installation of all subsurface footings, supports and foundations as may be required for future public improvements such as street lights, street trees, trolley wire poles, signs, benches, transit shelters, etc. within project vault areas. Placement of such improvements is entirely within the discretion of the City.

The following measures are added to FEIR p. 157 at the end of Transportation Mitigation measures, to include discussion of Mission Bay EIR cumulative mitigation measures.

MEASURES THAT COULD BE IMPLEMENTED BY PUBLIC AGENCIES

- The City could act to implement the transportation mitigations described in Vol. 1, Section V.E., Mitigation, pp. V.E.4-28, in the Downtown Plan EIR; and in the Mission Bay EIR Vol. II, Section VI.E, Mitigation, pp. VI.E.214-VI.E.217 for the year 2000 and VI.E.224-VI.E.231 for 2020, and in the South of Market EIR, pp. 189-194. The measures for the year 2000 are similar or identical to those in the Downtown Plan and include, in summary: measures to construct and maintain rail rapid transit lines from downtown San Francisco to suburban corridors and major non-downtown centers in San Francisco; measures to fund Vehicle Acquisition Plans for San Francisco and regional transit agencies to expand existing non-rail transit service; provide exclusive transit lanes on City streets and on freeways; reduce incentives to drive by reducing automobile capacities or bridges and highways in certain circumstances and by discouraging long-term parking; measures to encourage carpools, vanpools, and bicycle use; and measures to improve pedestrian circulation within downtown San Francisco.

Many of the measures have been implemented since the Downtown Plan EIR was certified, such as BART's Oakland WYE track, expansion of the Sutter/Stockton parking garage, requiring transportation brokers in major new downtown buildings, and designation of Rincon Hill as a high density housing area near downtown in the Rincon Hill Plan. Others are under study and a few have changed. Studies are continuing of extending CalTrain downtown, extending BART in the East Bay, building a new Muni Metro turnaround at the foot of Market Street (a DEIS was published by UMTA in summer 1988), and constructing HOV lanes on I-80 near the Bay Bridge; changed measures include the voter disapproval of removing the Embarcadero Freeway. The Embarcadero Freeway was damaged in the October 1989 earthquake. Reconstruction, repair, or demolition are now under consideration. The majority of these measures are relevant on an area-wide, city-wide or regional basis.

The South of Market EIR includes additional measures related to South of Market such as providing transportation brokerage services for new South of Market projects, as well as relevant measures for cumulative impacts similar to those in the Downtown Plan EIR.

Three types of mitigation measures related to cumulative impacts are described in the Mission Bay EIR: transportation system capacity improvements which are reasonably sure to happen by 2000 and are assumed in the impacts analysis; measures to mitigate regional impacts by 2000; and measures to mitigate regional impacts by 2020. (See Mission Bay EIR, Vol. II, pp. VI.E.198-231.)

Measures are proposed in the Mission Bay EIR to mitigate the impacts of regional growth in 2020. Those measures include expanding transbay transportation capacity to the East Bay by constructing a new bridge between Alameda and San Mateo Counties, widening the San Francisco-Oakland Bay Bridge or Hayward-San Mateo Bridge, or providing a new transbay tunnel or an enhanced train-control computer system for BART, expanded transbay capacity to the North Bay through provision of bus lanes or light-rail service on a second deck of the Golden Gate Bridge, and expanded transit opportunities to the South Bay via a CalTrain extension to downtown San Francisco or BART and Muni extensions to the Peninsula.

Some of the implementing actions would require approval by decision-makers outside the City and County of San Francisco; many of the measures would require action by City agencies other than the City Planning Commission, such as the San Francisco Public Utilities Commission and/or Board of Supervisors. All except such things as providing transportation brokers would require funding from or approval by MTC. These measures are system-wide measures that must be implemented by public agencies. Other than project-specific measures such as the relevant transportation mitigation measures described above as part of the project or such measures as the Transit Impact Development Fee assessment required by San Francisco ordinance 224-81 which contribute indirectly to implementation of these system-wide measures, it is not appropriate to impose mitigation at system-wide levels on individual projects.

AIR QUALITY

The following measure replaces the second Air Quality mitigation measure on FEIR p. 157:

- The project sponsor would require the contractor to sprinkle demolition sites with water continuously during demolition activity; sprinkle unpaved construction areas with water at least twice per day; cover stockpiles of soil, sand, and other such material; cover trucks hauling debris, soil, sand, or other such material; and sweep streets surrounding demolition and construction sites at least once per day to reduce particulate emissions. The project sponsor would require the project contractor to maintain and operate construction equipment so as to minimize exhaust emissions of particulates and other pollutants, by such means as prohibition on idling motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs to reduce emissions for equipment that would be in frequent use for much of the construction period.

NOISE

The following measure replaces the first Noise mitigation measure, FEIR p. 158:

- The construction contract would require that the project contractor muffle and shield intakes and exhausts, shroud or shield impact tools, and use electric-powered rather than diesel-powered construction equipment, as feasible, so that noise would not exceed limits stated in the City's Noise ordinance (Article 29, San Francisco Administrative Code, 1972).

The following measures are added after the second measure, FEIR p. 158:

- If the project were to include pile driving, the project sponsor would require that the project contractor predrill holes (if feasible based on soils) for piles to the maximum feasible depth to minimize noise and vibration from pile driving. The actual pounding from pile driving would occur during a five- to eight-minute span per pile.

- If the project were to include pile driving, the project sponsor would consult with the Department of Public Works to determine the time when pile driving would cause the least disturbance to neighboring uses. The project sponsor would require that the construction contractor limit pile driving activity to result in least disturbance. This could require a work permit from the Director of Public Works pursuant to San Francisco Noise Ordinance Section 2908, if piledriving during nighttime hours is determined to be less disruptive to neighboring uses.

ENERGY

FEIR p. 158, the mitigation measure is deleted as it would not mitigate potentially significant energy effects. The project would be required to meet Title 24 of the California Code of Regulations which requires energy efficiency in new construction.

CLIMATE

FEIR p. 159, the second measure under climate is deleted because while it describes design features to reduce wind effects, these features are already included in the project, and, further it would not mitigate a potentially significant effect.

HAZARDS

The following measure is added as the last measure on FEIR, p. 159:

- To expedite implementation of the City's emergency response plan, the project sponsor would prominently post information for building occupants concerning what to do in the event of a disaster.

GEOLOGY/TOPOGRAPHY

The following is added to the first Geology/Topography mitigation measure, FEIR p. 160, after the first sentence:

- The project sponsor would follow the recommendations of these studies during the final analysis, excavation and construction phase.

The following are added to Geology/Topography mitigation measures, FEIR p. 160, after the first paragraph:

- The final soils report would also recommend whether or not watering of piles of adjacent structures would be necessary. If it were found to be necessary, the project sponsor would ensure that the general contractor complied.

- If dewatering is undertaken for the project, the groundwater level in the site vicinity would be monitored. Dewatering would not occur until the excavation bulkhead is in place or other measures are taken to control the water level in the surrounding area. If lowering of the groundwater table were to threaten wooden pile foundations, groundwater recharge would be used to stabilize the groundwater level.

- If building foundations would be below the water table, the foundations would be designed to be watertight and to resist hydrostatic updraft pressures.

VII. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

This chapter is subject to final determination by the City Planning Commission as part of its certification process for the EIR. Chapter VI of the Final Supplemental EIR will be revised, if necessary, to reflect the findings of the Commission.

This chapter identifies significant impacts that could not be eliminated or reduced to an insignificant level by mitigation measures included as part of the project, as described in FEIR Chapter V., Mitigation Measures, p. 155 to p. 160, and pp. 71 - 77 of this document.

No project-specific significant impacts have been identified.

Cumulative development in downtown San Francisco would have a significant effect on the environment in that it would generate cumulative traffic increases as well as cumulative passenger loadings on Muni, BART and other regional transit carriers. These cumulative transportation impacts could cause violations to fine particulate matter standards (PM_{10}) in San Francisco with concomitant health effects and reduced visibility. The proposed project would contribute to these cumulative effects.

The following new Alternative Seven: Second Street Open Space, One Parking Level and Alternative Seven A: Second Street Open Space, Two Parking Levels are added to the FEIR, beginning on FEIR p. 168h; Figures 33-35, pp. 80, 83, 84 of this document, are added to the FEIR (Alternative Seven A is the project sponsor's preferred alternative):

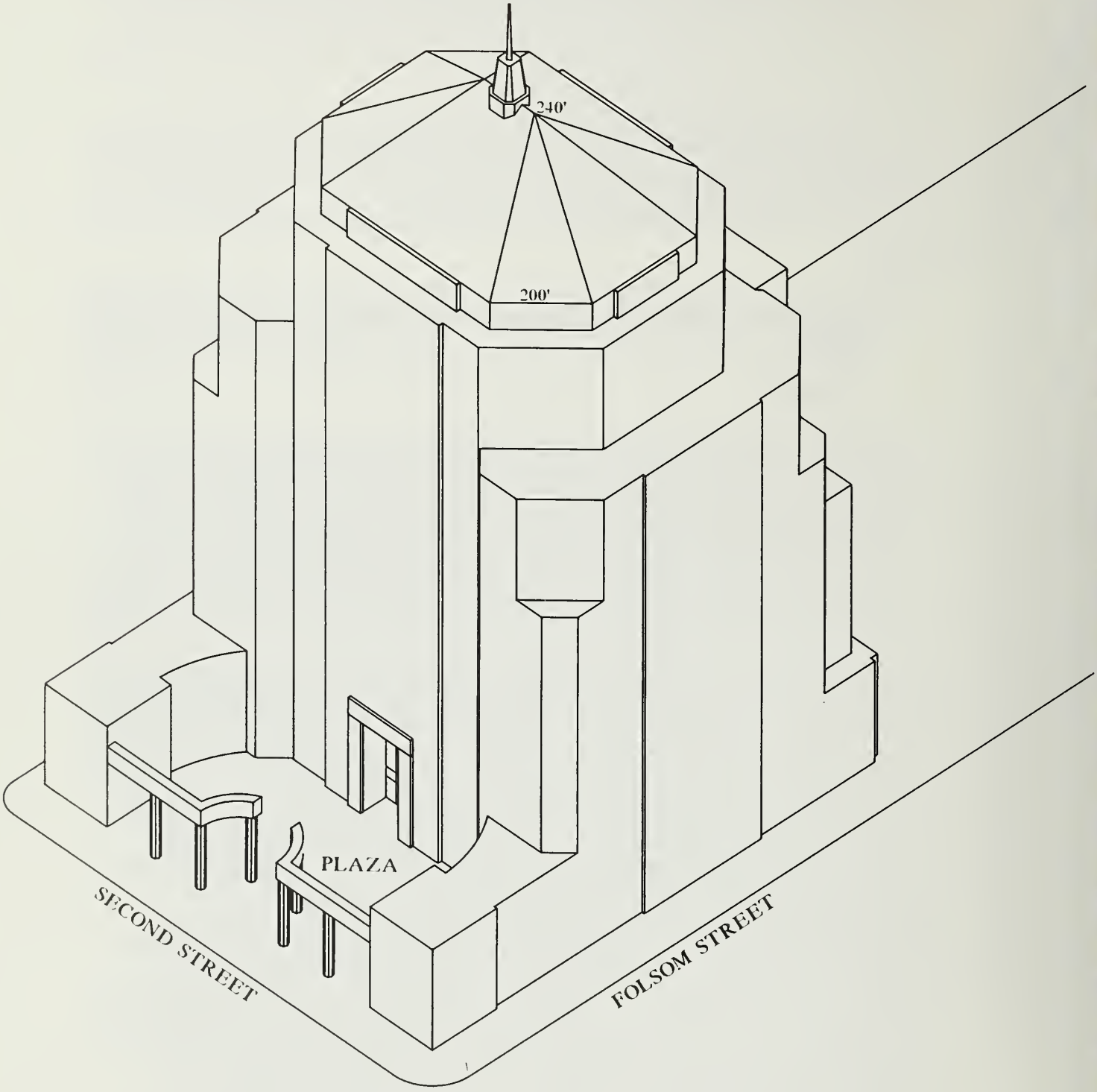
H. ALTERNATIVE SEVEN: SECOND STREET OPEN SPACE, ONE PARKING LEVEL

1. Description

This alternative would include about 260,000 sq. ft. of office space; 18,300 sq. ft. of retail space (including restaurant) on the ground-floor; about 5,600 sq. ft. of ground level open space fronting Second Street (5,600 sq. ft. would be required); and about 18,200 sq. ft. of parking area in one basement level, which the Department of City Planning estimates could accommodate 85 vehicles under tandem-valet operation. Access to the two truck and four van loading spaces would be from Clementina St. This would be compared to 267,800 sq. ft. of office, 15,600 sq. ft. of retail, 6,435 sq. ft. of rooftop and greenhouse open space and 213 tandem valet parking spaces for the project.

This alternative would include 74,660 sq. ft. of TDR, compared to about 105,000 sq. ft. with the project. The office area would be about 7,800 sq. ft. less than with the project; the FAR would be about 8.4:1, compared to 9.4:1 for the project. Alternative Seven would be 240 ft. tall to the top of the roof of the mechanical penthouse, about the same as for the proposed project (see Figure 33). This alternative would be topped by a decorative spire about 50 feet in height as would the project. Like the project, this alternative would require an exception to the upper tower bulk limits from 160 feet to 162.5 feet under Sections 272 and 309 of the City Planning Code. This alternative would meet all other requirements of the City Planning Code for height, floor size, setbacks, maximum diagonal dimension and building length. In comparison, the project would require more exceptions to City Planning Code requirements to exceed lower tower maximum diagonal dimension and upper tower maximum average floor size standards. Like the project, this alternative would require an exception pursuant to sections 309 and 148 of the City Planning Code to allow exceedences of the 11 mph windspeed pedestrian comfort criterion (the project would require such an exception for six locations; this alternative would require an exception for four locations). The project would also require Conditional Use authorization to include parking uses, in two basement levels, exceeding seven percent of gross floor area. Parking area, on one basement level, would not exceed seven percent of total gross floor area; thus this alternative would not require Conditional Use authorization. This alternative would provide the equivalent of four loading spaces as required by Code the same as the project.

Alternative Seven open space would be provided in a landscaped plaza fronting Second St., with the office tower set back about 60 ft. from the street. The open space would be enclosed on the north and south by four-story portions of the building, and a colonnade on the west side (see Figure 33). Ground-floor retail uses would front the open space and the abutting sidewalks.



299 SECOND STREET

SOURCE: Heller & Leake

FIGURE 33
ALTERNATIVE SEVEN:
SECOND STREET OPEN SPACE

2. Impacts

Figure 34, p. 83, shows the maximum extent of Alternative Seven shadows as though cast on the ground without existing intervening buildings. Alternative Seven would add no new shadows to any property under the jurisdiction of, or designated for acquisition by the Recreation and Park Commission, during the hours specified by the sunlight ordinance (from one hour after sunrise to one hour before sunset) at any time of the year. Shadow effects of this alternative would be about the same as shadow effects of the project.

Yerba Buena Gardens was approved as a conceptual part of the Yerba Buena Center (YBC) Redevelopment project on October 30, 1984, as part of a Disposition and Development Agreement of the Redevelopment Agency. The Gardens concept has continued to evolve, as has the Yerba Buena Redevelopment project as a whole, since the Redevelopment project was approved by the Board of Supervisors in 1966. The most recent official approval action regarding the Yerba Buena Gardens site was on December 17, 1984, when the Board of Supervisors approved the Moscone Center Expansion project.

Figure 34 illustrates that, without considering shadows cast by existing buildings, the proposed project shadow would reach the block bounded by Howard, Third, Mission and Fourth Sts., known as YBC Central Block 2, the site proposed for the Yerba Buena Gardens development between April and August. The approximate location of the East Garden, under the current Yerba Buena Gardens design plan, is identified as proposed open space.

Analyzed with existing buildings, but without potential development on YBC East Block 2 (located along Third St. between Mission and Howard Sts.), shadows from Alternative Seven on the Yerba Buena Gardens Redevelopment project on April 21, at 7:25 a.m. PDT, during the week of greatest project impact, are shown in Figure 35, p. 82 of this document. Shadow effects on April 21st and August 21st are the same. New shadow from this alternative would reach the East Garden of Yerba Buena Gardens (YBC Central Block 2) before about 7:15 a.m. between about April 15 and April 30, and between about August 12 and August 27. The duration of the shadow, beginning at one hour after sunrise, would be less than 10 minutes on these dates. The new shadow would be cast by the spire of this alternative (see Figure 35). Shadow from the alternative would not reach the East Garden of YBC Central Block 2 at other times of the day or other months of the year.

Figure 35 shows shadow cast by the alternative under existing conditions, without consideration of buildings across the street from the development proposed on the YBC East Block 2 sites fronting the east side of Third St. between Mission and Howard Sts. The proposed Museum of Modern Art building (east across Third St. from the proposed East Garden) has yet to be designed, but its height is currently estimated to be between 80 ft. to 120 ft. above grade. An office or residential development is proposed south of the museum site; its height is not yet determined. Shadow analysis for Alternative Seven indicates that all new shadow cast by the project would be intercepted by any building over 65 ft. in height at the lot lines of the museum building site, or 55 ft. for the office or residential site to the south of the museum site. Any proposed future YBC development on East Block 2 that would exceed 55 to 65 ft. in height would shadow the proposed East Garden at those times during the year when shadow from Alternative Seven would reach the East Garden. Therefore, with construction of future development planned for East Block 2, no new shadow from the alternative would be cast on any proposed open space of Yerba Buena Gardens.

Figure 34 also shows potential of Alternative Seven for shading of the enclosed open space of the approved 101 Second Street building. Because of shadows from existing buildings, however, Alternative Seven would not add new shade to this area.

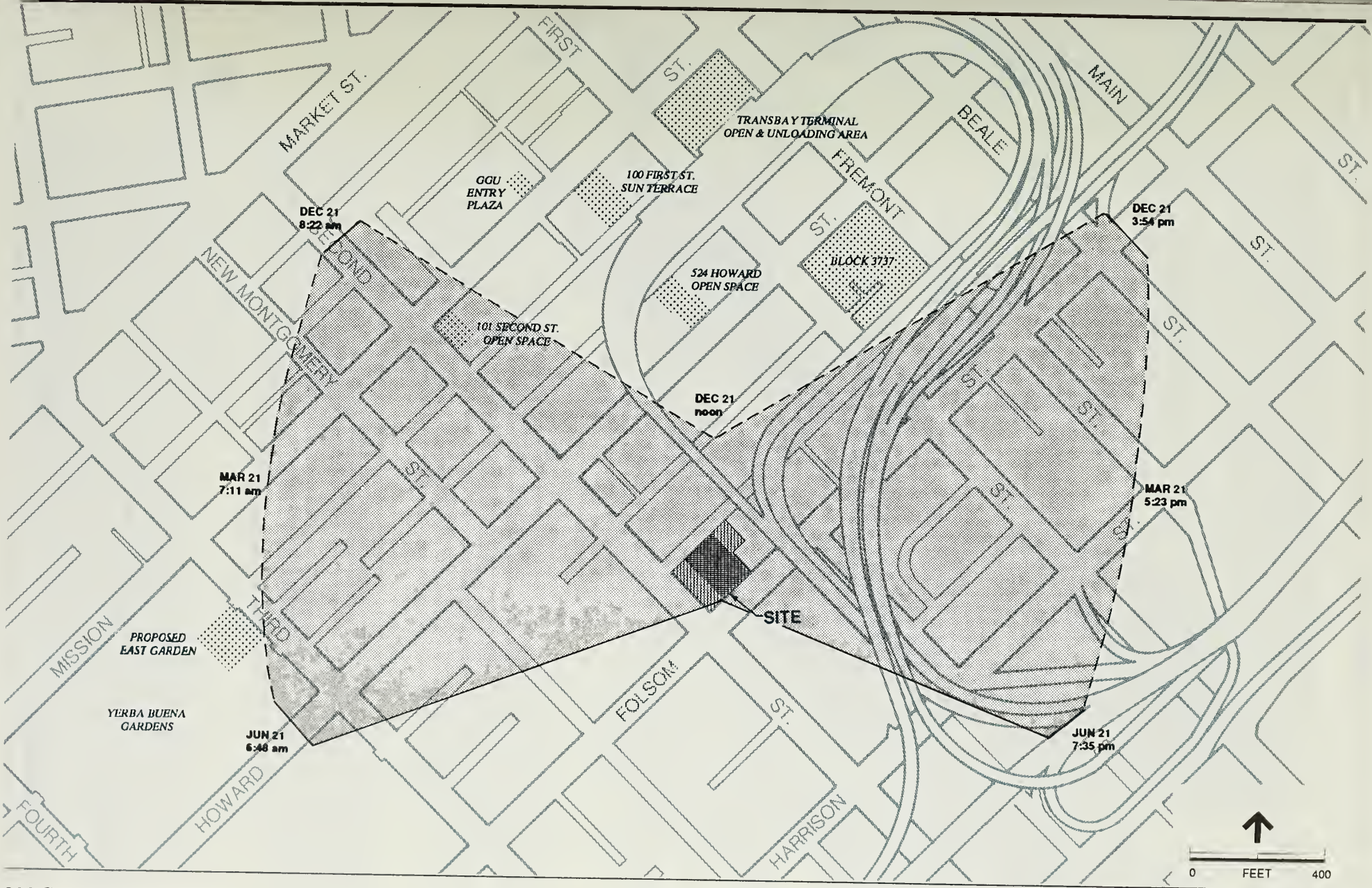
In all seasons of the year between noon and one p.m., central and northern portions of the open space for this alternative would be in sun. The open space would begin to be in sun after about 11:00 a.m. in May, June and July and would remain in sun for the rest of the day. In March, April, August and September, open space would be in sun beginning at 10 a.m. and most of the open space would this remain in sun for about five hours. In October and February the open space would be in sun for about four hours during the midday. From November to January the open space would be in sun for about two to two and one-half hours during the midday. The eastern portion of the open space would have more afternoon sun, the western portion would have more morning sun, and the northern portion would have more midday sun than the rest of the alternative's open space.

The alternative would cause wind speeds to increase at 12 of the 27 test locations, to remain the same at 10 locations, and to decrease at 5 locations. In comparison wind speeds would increase at 14 of 25 locations, remain the same at 7 locations and decrease at 4 locations with the project. Winds in sidewalk areas would exceed the 11 mph comfort criterion for pedestrian areas at four locations (one location on Clementina Street by three mph and three locations on Folsom Street by one mph including the northeast corner of Second and Folsom) compared to six locations with the project. At the two test locations within sitting areas created by this Alternative (locations 24 to 25), winds would satisfy the seven mph comfort criterion compared to open space within the project for which it was not possible to test.

This alternative would generate about one percent more automobile and transit trips than the project would. While Alternative Seven would have about 7,000 sq. ft. less office space than the project, it would have about 3,000 sq. ft. more retail area, resulting in the increase in daily person- trip-ends. Peak-hour vehicle-trip-ends would be about two percent less with this alternative also due to this difference. The alternative's effects on intersection operation near the project site would be about the same as to those of the project. The equivalent daily parking demand would be for about 156 spaces, the same as for the project. Because about 18,200 gross square feet of parking, which the Department of City Planning estimates could accommodate 85 vehicles under tandem valet operation, would be provided, the unmet demand with this alternative would be for about 99 spaces, compared to a 29 space surplus over total demand with the project. The loading demand from this alternative would average 3.0 spaces per hour, the same as with the project.

As the site is located along one of the alternative alignments for the proposed extension of Caltrain into downtown San Francisco now under study, access to this alternative, like to the project, would be impacted should this alternative Caltrain alignment be chosen. The environmental analysis for the Caltrain extension is in preliminary stages.

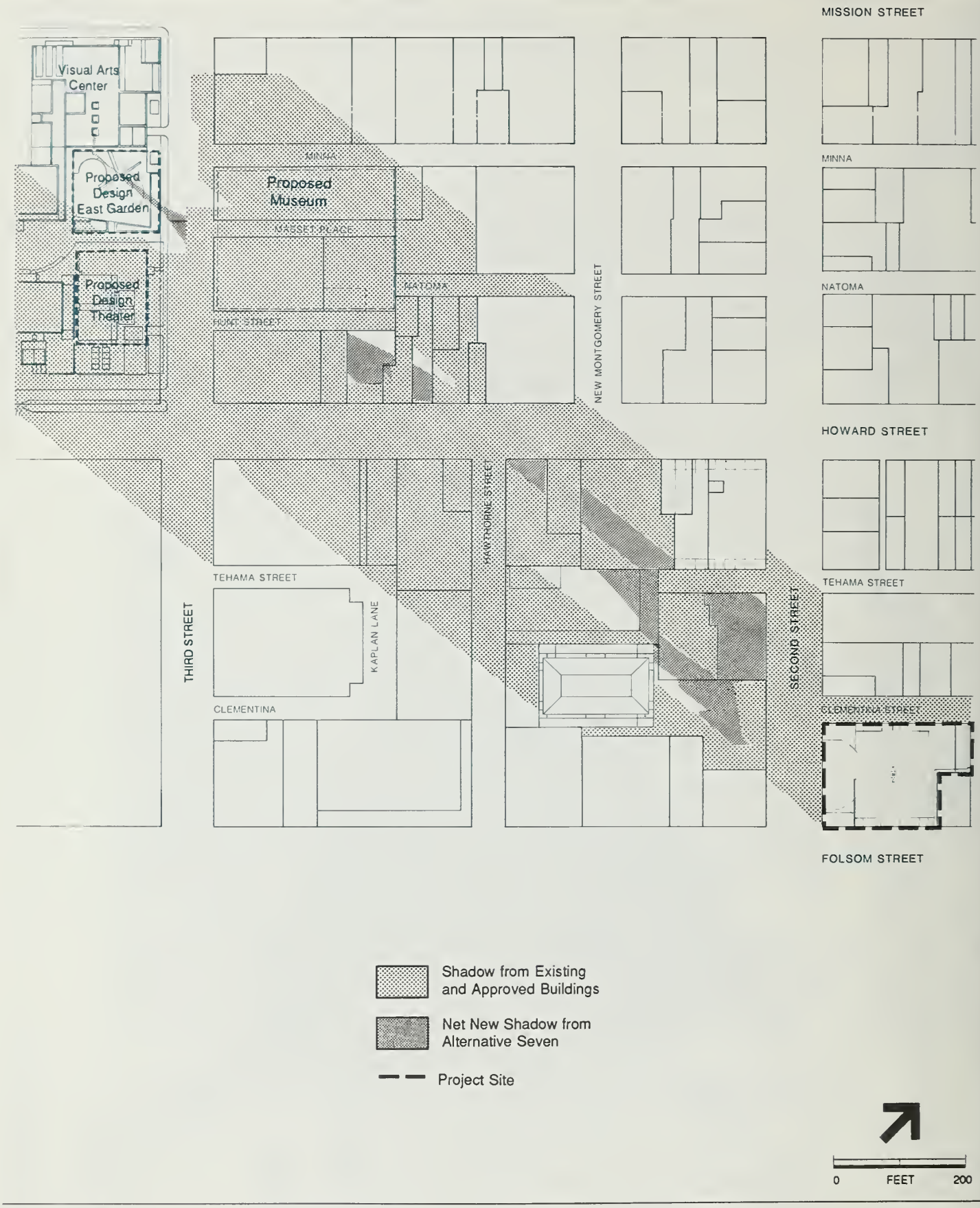
Energy consumption and air quality effects would be about the same as with the project. The construction period would be about the same, so that construction noise effects would be generally the same as reported for the project.



299 SECOND STREET

FIGURE 34
ALTERNATIVE SEVEN:
YEAR-ROUND SHADOW TRACE

SOURCE: Environmental Science Associates, Inc.



299 SECOND STREET

FIGURE 35
ALTERNATIVE SEVEN:
SHADOW PATTERNS, APRIL 21, 7:25 A.M.

SOURCE: Environmental Science Associates, Inc.

Architectural and historic resource effects would be the same for this alternative as for the project. Potential cultural resource effects with this alternative could be less for this alternative than with the project as there would be excavation for one basement level compared with two basement levels for the project.

This alternative would have an OAHPP housing requirement under Section 313 of the City Planning Code of 87 units (with at least 50% reserved for low- and moderate-income households) compared to 90 units for the project.

3. Reasons for Rejection

The sponsor has rejected this alternative to the project because, in the sponsor's opinion, it would not provide sufficient parking supply to meet parking demand.

I. ALTERNATIVE SEVEN A: SECOND STREET OPEN SPACE, TWO PARKING LEVELS

1. Description

This alternative would be identical to Alternative Seven except that there would be two basement levels of parking instead of one level, resulting in a larger FAR and in more TDR than Alternative Seven. This alternative would have about the same amount of parking (215 spaces compared to 213 spaces) and result in about the same FAR (9.3:1 compared to 9:4:1) as the FEIR project would and would require (about 102,750 sq. ft. compared to about 105,000 sq. ft.)about the same amount of TDR. Like the project, this alternative would require Conditional Use authorization for parking in excess of seven percent of the gross floor area of the alternative. The sponsor intends to use all parking in excess of the seven percent allowance exclusively for public short term or for the short term parking needs of vehicle fleets owned by project occupants.

2. Impacts

The impacts of this alternative would be identical to those of Alternative Seven due to the identical building envelope, except that there would be more vehicle trips from the project site resulting in more traffic impacts at the project location with this alternative, and there would be a greater potential to discover cultural remains due to deeper subsurface excavation. The traffic and potential cultural resource effects of this alternative would be the same as those reported for the FEIR project.

Parking demand for this alternative (156 spaces) would be about the same as for Alternative Seven and the project. This alternative would result in a 31 space parking surplus compared to a 29 space surplus for the project. Due to use of excess space to be used for short term parking, this alternative would result in an unmet demand for long term parking of 65 spaces compared to 67 spaces for the project. In comparison, Alternative Seven would have total unmet demand for about 99 parking spaces.

3. Reasons for Consideration

Alternative Seven A is currently the project sponsor's preferred alternative. The sponsor prefers this alternative to the project because, in the sponsor's opinion, it would respond to concerns of scale and compatibility, and would provide superior project open space, while meeting the objectives of the sponsor for high quality office space in a location well served by transit. In addition, there would be fewer exceedences of the wind comfort criteria with this alternative than with the project, and the alternative would provide more parking to serve the development than Alternative Seven.

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X. APPENDICES

APPENDIX A: Air Quality

APPENDIX B: Transportation

APPENDIX C: Wind Study Methodology

APPENDIX A: AIR QUALITY

TABLE A-1: SAN FRANCISCO AIR POLLUTANT SUMMARY, 1986-1988 /a/

POLLUTANT:	STANDARD Federal/b/	STANDARD State/c/	1986	1987	1988
OZONE (O_3) (Oxidant)					
1-hour concentration, ppm					
Highest hourly average	0.12/d/	0.10	0.07	0.09	0.09
Number of violations			0	0	0
CARBON MONOXIDE (CO)					
1-hour concentration, ppm					
Highest hourly average	35	20	9.0	9.0	9.0
Number of violations			0	0	0
8-hour concentration, ppm					
Highest 8-hour average	9	9	12.6/e/	10.0/e/	12.8/e/
Number of violations			2	1	1
TOTAL SUSPENDED PARTICULATE (TSP)					
24-hour concentration, ug/m^3					
Highest 24-hour average	260	100/f/	124	136	113
Number of violations of previous standard			5	3	1
Annual concentration, ug/m^3					
Annual Geometric Mean/g/		60/f/	52	61	41
Annual excess			No	Yes	No
PARTICULATE MATTER-10 MICRON (PM_{10})					
24-hour Average (ug/m^3)	150	50			
Highest 24-hour average			--	65	117
Number of violations			--	4	5
LEAD (Pb)					
30-day concentration, mg/m^3					
Highest 30-day average		1.5	0.2	0.1	0.1
Number of violations			0	0	0
NITROGEN DIOXIDE (NO_2)					
1-hour concentration, ppm					
Highest hourly average		0.25	0.11	0.15	0.12
Number of violations	None		0	0	0
SULFUR DIOXIDE (SO_2)					
24-hour concentration, ppm					
Highest 24-hour average	0.14	0.05	0.010	0.010	0.013
Number of violations			0	0	0

TABLE A-1: SAN FRANCISCO AIR POLLUTANT SUMMARY 1986-1988 (Continued)

NOTE: ppm = parts per million.
ug/m^3 = micrograms per cubic meter.
mg/M^3 = milligrams per cubic meter.

/a/ 1985-September 1986 data were collected at 900 23rd Street. October 1987 to present data is a consolidation of measurements taken at 900 23rd Street and 10 Arkansas Avenue.
/b/ Federal standard, not to be exceeded more than once per year, except for annual average standards, which are not to be exceeded.
/c/ State standard, not to be equaled or exceeded, except for CO standards, which are not to be exceeded.
/d/ The federal standard is in terms of Expected Annual Excesses which is based on a three-year running average.
/e/ This CO is measured at a special measurement station at Ellis St. for street level maximums, referred to as a microscale site.
/f/ The California ARB has redefined the state particulate standard to apply to "inhalable" particulates only (i.e., those which have a diameter less than or equal to ten microns). The new standards are 50 ug/m^3 for 24-hour averages and 30 ug/m^3 for the annual geometric mean.
/g/ The annual geometric mean is a single number which applies to an entire year of data. "No" indicates that TSP concentrations did not exceed $60(ug)m^3$.

SOURCE: California Air Resources Board, 1986 - 1988, California Air Quality Data.

APPENDIX B: TRANSPORTATION

PARKING DEMAND CALCULATIONS

PARKING METHODOLOGY

Long Term Parking Demand:

$$\frac{\text{Office Space gsf}}{20{,}000} + \frac{(\text{Office Space GSF} \times 0.11)}{275\text{GSF/employee}} + \frac{(\text{Retail GSF} \times 0.15)}{350\text{ GSF/employee}} = \text{Long Term Parking Demand}$$

Short Term Parking Demand:

$$\frac{\text{Office Space gsf}}{20{,}000} + \frac{\text{Retail GSF}}{1{,}000} = \text{Short Term Parking Demand}$$

Total Parking Demand:

Long Term Parking Demand + Short Term Parking Demand = Total Parking Demand

PROJECT

Project Long Term Parking Demand

$$\frac{267{,}800}{20{,}000} + \frac{(267{,}800 \times 0.11)}{275} + \frac{(15{,}600 \times 0.15)}{350} = 13.4 + 107.1 + 6.7 = 127$$

Project Short Term Parking Demand

$$\frac{267{,}800}{20{,}000} + \frac{15{,}600}{1{,}000} = 13.4 + 15.6 = 29$$

Total Project Parking Demand

127 =29 = 156

ALTERNATIVE SEVEN

Alternative Seven Long Term Parking Demand

$$\frac{260{,}000}{20{,}000} + \frac{(260{,}000 \times 0.11)}{275} + \frac{(18{,}300 \times 0.15)}{350} = 13.0 + 104.0 + 7.8 = 125$$

Alternative Seven Short Term Parking Demand

$$\frac{260{,}000}{20{,}000} + \frac{18{,}300}{1{,}000} = 13.0 + 18.3 = 31$$

Total Alternative Seven Parking Demand

125 + 31 = 156

M OCEAN VIEW - CIVIC CENTER STATION
Wednesday, September 9, 1981 - 8:20 A.M. - Inbound

L TARAVAL - VAN NESS STATION
Wednesday, September 16, 1981 - 4:50 P.M. - Outbound

14 MISSION - MISSION STREET AND SOUTH VAN NESS AVE
Tuesday, September 29, 1981 - 5:45 P.M. - Outbound

N JUDAH - DUBOCE AND CHURCH
Wednesday, June 8, 1983 - 8:00 A.M. - Inbound

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FIGURE B-1
PHOTOS OF MUNI PEAK LOADING CONDITIONS

SOURCE: Environmental Science Associates, Inc.

K INGLESIDE - VAN NESS STATION
Wednesday, September 9, 1981 - 8:00 A.M. - Inbound

N JUDAH - VAN NESS STATION
Wednesday, September 16, 1981 - 5:00 P.M.-Outbound

38 GEARY - VAN NESS AVE. AND O'FARRELL ST.
Wednesday, October 21, 1981 - 9:00 A.M. - Inbound

38 GEARY - VAN NESS AVE. AND GEARY BLVD.
Wednesday, October 21, 1981 - 4:20 P.M. - Outbound

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SOURCE: Environmental Science Associates, Inc.

FIGURE B-1(CONTINUED)
PHOTOS OF MUNI PEAK LOADING CONDITIONS

30X MARINA EXPRESS - BAYSHORE AVE. AND ARIETA AVE.
Wednesday, October 7, 1981 - 8:00 A.M. - Inbound

J CHURCH - CHURCH ST. AND DUBOCE AVE.
Tuesday, September 29, 1981 - 9:00 A.M. - Inbound

SOURCE: Environmental Science Associates, Inc.

FIGURE B-1(CONTINUED)
PHOTOS OF MUNI PEAK LOADING CONDITIONS

JAMMED FLOW. Space per pedestrian in this view is about 3.8 sq ft (0.35 m^2). This is representative of the lower half of the speed-flow curve, where only shuffling movement is possible and even the extremely uncomfortable maximum flow rate of 25 people per min per ft (82 per m) of walkway width cannot be attained due to lack of space. Photograph by Louis B. Schlivek.

The threshold of CONGESTED FLOW. The first eleven people in the view have about 16 sq ft (1.5 m^2) per person, corresponding to a flow rate of about 15 people per min per ft (49 per m) of walkway width. The beginnings of congestion are evident in bodily conflicts affecting at least three of the walkers, and in blocked opportunities for walking at a normal pace.

The onset of CROWDED FLOW, with an average of about 24 sq ft (2.2 m^2) per person, or a flow rate of about 10 people per min per ft (33 per m) of walkway width. Choice of speed is partially restricted, the probability of conflicts is fairly high, passing is difficult. Voluntary groups of two, of which two can be seen in the picture, are maintained, but cause interference. Note also some overflow into the vehicular roadway in the background.

The midpoint of the CONSTRAINED FLOW range, with about 30 sq ft (2.8 m^2) per person, or a flow rate of about 8 people per min per ft (26 per m) of walkway width. The choice of speed is occasionally restricted, crossing and passing movements are possible, but with interference and with the likelihood of conflicts. The man in the dark suit seems to be able to cross in front of the two women in the foreground quite freely, but in the background near the curb people are having difficulty with passing maneuvers.

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FIGURE B-2
PHOTOS OF PEDESTRIAN FLOW LEVELS

SOURCE: Pushkarev and Zupan

The borderline between IMPEDED and UNIMPEDED FLOW, with about 130 sq ft (12 m^2) per person, or a flow rate of about 2 people per min per ft (6.5 per m) of walkway width. Individuals as well as couples visible in this view have a choice of speed and direction of movement. This rate of flow is recommended for design of outdoor walkways in office districts and other less dense parts of downtown areas.

The uneven nature of UNIMPEDED FLOW. While the people walking in the plaza—which is 17 ft (5.2 m) wide, compared to 23 ft (7 m) in the preceding picture—have almost 130 sq ft (12 m^2) per person on the average, the space allocation for the eight individuals in the foreground is closer to 70 sq ft (6.4 m^2). Thus, indirect interaction with others is still quite frequent in the upper range of UNIMPEDED FLOW.

The midpoint of the IMPEDED FLOW range, with about 75 sq ft (6.9 m^2) per person, or a flow rate of about 4 people per min per ft (13 per m) of walkway width. Physical conflicts are absent, but pedestrian navigation does require constant indirect interaction with others. This rate of flow is recommended as an upper limit for the design of outdoor walkways in shopping districts and other dense parts of downtown areas.

Lower range of UNIMPEDED movement, approaching OPEN FLOW. About 350 sq ft (32.2 m^2) per person, or a flow rate of less than 1 person per min per ft (3.3 per m) of walkway width. Complete freedom to select the speed and direction of movement; individuals behave quite independently of each other. For a design standard based solely on pedestrian density, this amount of space can be considered excessive.

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FIGURE B-2 (CONTINUED)
PHOTOS OF PEDESTRIAN FLOW LEVELS

SOURCE: Pushkarev and Zupan

Appendix G, pp. A-55 to A-62 of the FEIR is replaced with the following:

APPENDIX G: WIND STUDY METHODOLOGY

This summary of wind study methodology is based on a study by Bruce R. White, Ph.D., Associate Professor of Mechanical Engineering at the University of California, Davis. The study is independent of the University. The report is available for review at the Department of City Planning, Office of Environmental Review, 450 McAllister St.

INTRODUCTION

The comfort of pedestrians varies under different conditions of sun exposure, temperature, clothing, and wind speed. Winds up to four mph have no noticeable effect on pedestrian comfort. With winds from four to eight mph, wind is felt on the face. Winds from eight to 13 mph will disturb hair, cause clothing to flap, and extend a light flag mounted on a pole. For winds from 19 to 26 mph, the force of the wind will be felt on the body. At 26 to 34 mph winds, umbrellas are used with difficulty, hair is blown straight, there is difficulty in walking steadily, and wind noise is unpleasant. Winds over 34 mph increase difficulty with balance and gusts can blow people over.

Wind tunnel tests were conducted for winds in the project vicinity in its existing condition, (including all approved development) and with the project in both the existing scenario and the potential development context, all in relation to the Downtown Plan wind performance criteria (adopted by the City Planning Commission, November 29, 1984). Wind tunnel measurements and existing weather records for San Francisco were used to predict equivalent mean wind speeds near the project site./1/ These mean wind speeds were compared to comfort criteria of 11 mph for pedestrian areas and seven mph for sitting areas, each not to be exceeded more than 10% of the time. Separate calculations were also done to evaluate compliance with the hazard criteria that hourly average wind speeds may not reach or exceed 26 mph for one hour per year.

A one inch = 50 feet scale model of the downtown San Francisco area surrounding the proposed building for several blocks in all directions was provided by ESA. The model tested six configurations: existing; project plus existing; potential development context; project plus potential development context; a 6:1 FAR alternative plus existing; and a maximum building envelope alternative plus existing.

The model was tested in a wind tunnel that allows testing of natural atmospheric boundary layer flows past surface objects such as buildings and other structures. The tunnel has an overall length of 22 meters (m) (72 feet), a test section of 1.22 m (4 feet) wide by 1.83 m (6 feet) high, and an adjustable false ceiling. The adjustable ceiling and turbulence generators allow speeds within the tunnel to vary from one to four meters per second(m/s) or 4.8 to 19.3 miles per hour (mph).

The wind tunnel study was divided into two parts: flow visualization and wind speed measurements. The flow visualization observations were performed by injecting a continuous stream of smoke at various near-surface locations. The subsequent motion of the smoke was recorded, and prevailing wind directions were determined.

Wind-speed measurements were made with a hot-wire anemometer, an instrument that directly related rates of heat transfer to wind speeds by electronic signals. The hot-wire signals are proportional to the magnitude and steadiness of the wind. Both the mean wind speeds and corresponding turbulence intensities were measured. Thus, high wind speeds and gustiness (changes in wind speeds over short periods of time) could be detected. Hot-wire measurements made close to the surface have an inherent uncertainty of plus or minus (±) five percent of the true values. The ratio of near-surface speed to reference wind speed was calculated from the hot-wire measurements.

Twenty-seven test locations were studied for four prevailing wind directions (northwesterly, west-northwesterly, west-southwesterly and westerly) for the six configurations. These wind conditions are the most common in San Francisco, and are therefore the most representative for evaluation purposes. All hot-wire measurements were taken at the same series of surface points around the building site for the four wind directions and the six cases.

Methodology and Assumptions

The wind ordinance associated with the Downtown Plan (Section 148) is defined in terms of equivalent wind speed. This term denotes an average wind speed (mean velocity), adjusted to include the level of gustiness and turbulence.

The mean wind speeds at street level were determined by a wind tunnel test and a comparison of the test results with statistically representative records of wind data collected atop the Old Federal Building. Data describing the speed, direction and frequency of occurrence of winds were gathered at the old San Francisco Federal Building, at 50 United Nations Plaza, during the six-year period 1945 to 1950. Measurements taken hourly and averaged over one-minute periods have been tabulated for each month (averaged over the six years) in three-hour periods using seven classes of wind speed and 16 compass directions. Analysis of these data shows that during the hours from 6:00 a.m. to 8:00 p.m., about 62% of the winds blow from three of the 16 directions, as follows: Northwest (NW), 10%; West Northwest (WNW), 14%; West (W), 35%; and, all other winds, 36%. Calm conditions occur two percent of the time.

Each wind tunnel measurement results in a ratio that relates the speed of ground-level wind to the speed at the reference elevation, in this case the height of the old San Francisco Federal Building. The wind that is measured is an equivalent wind-speed value which is adjusted to include the level of gustiness or turbulence present.

The frequency with which a particular wind velocity is exceeded at any test location is then calculated by using the measured wind tunnel ratios and a specified ground speed to determine the corresponding reference wind speed for each direction. In general, this gives different reference speeds for each direction (NW, WNW, WSW, W, and Other). The wind data for San Francisco are then used to calculate the percentage of the time each reference speed would be exceeded. The sum of these is the total percentage of time that the specified ground-level wind speed is exceeded. A computer is used to calculate the total percentages for a series of wind speeds until the speed corresponding to the speed exceeded 10% of the time is found. Throughout the

following discussion, the wind speeds reported refer to the equivalent wind speeds that would be exceeded 10% of the time. This is the time period specified for evaluation of the comfort criteria in the Downtown Plan.

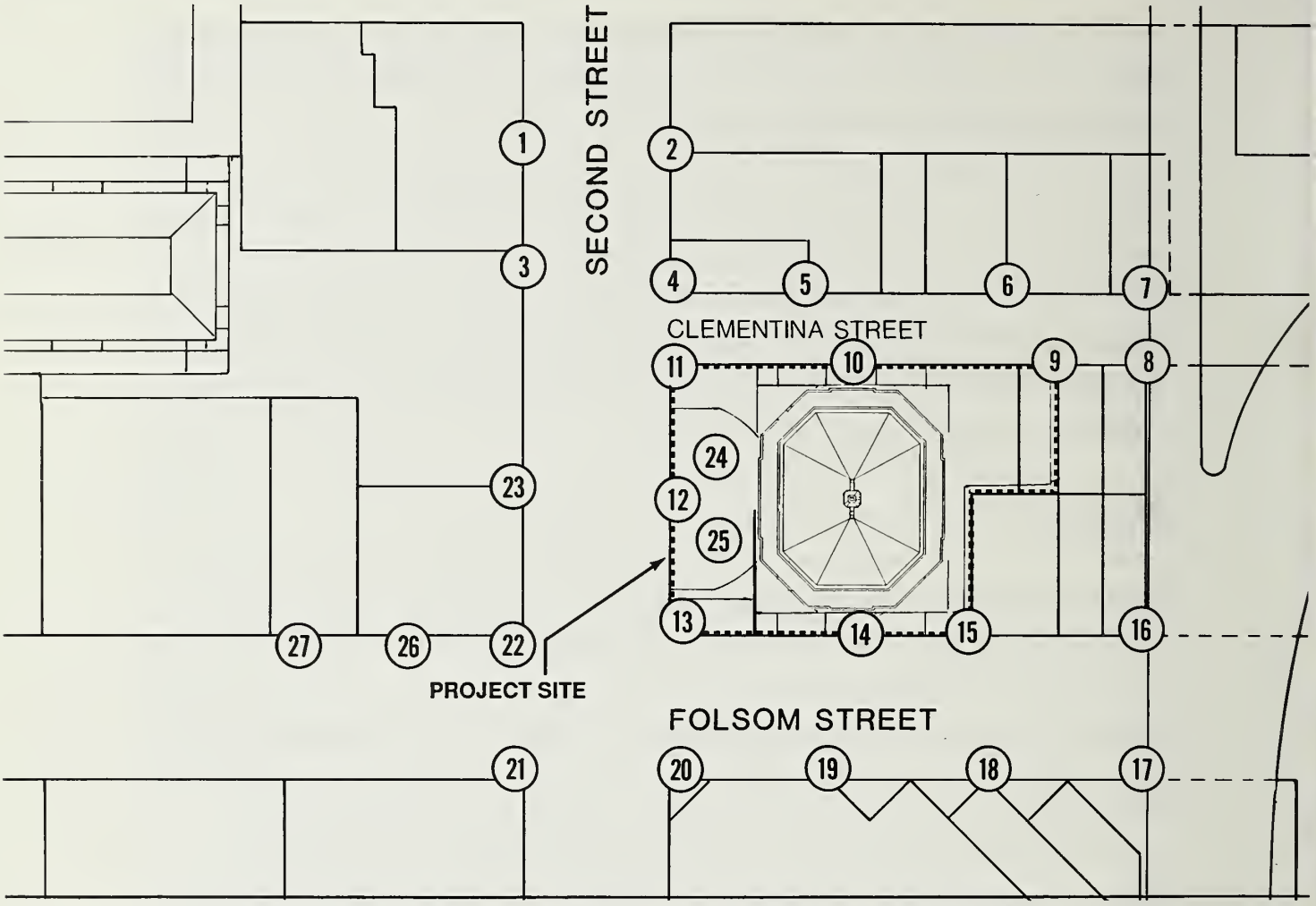
The hazard criterion in the Downtown Plan states that the hourly average wind speed may not reach or exceed 26 mph for one hour per year. The wind data observed at the old San Francisco Federal Building are not full hour average speeds as required by the code, so it is necessary to adjust the equivalent wind speeds to obtain the true hourly average of 26 mph./2/ The adjusted equivalent wind speeds were used to calculate compliance with the hazard criterion.

Study Results

The locations of the measurement points and the result of the wind tunnel study for compliance with the comfort criteria are summarized in Figure G-1, p. A.9

Wind speeds in the existing setting are from 5 to 12 mph. In the existing setting there is one violation of the 11 mph pedestrian comfort criterion, at the southern corner of the Folsom Street and Second Street intersection. Winds were also tested within a "Potential Development Context," which included all buildings contained in the Existing Setting, as well as all projects approved (but not constructed) in the project area including: 524 Howard St., 222 Second St., and 101 Second St.

The project would cause wind speeds to increase at 14 of 25 test locations, to remain the same at 7 locations, and to decrease at 4 locations. Two locations (locations 24 and 25 on Figure G-1) were not tested under project conditions because they would cease to be outdoor locations under project development. Winds within sidewalk areas would exceed the 11 mph comfort criterion for pedestrian areas at six test locations (three locations on Clementina Street and three locations across from the project on Folsom Street) by one mph at each location except at location nine adjacent to the project on Clementina Street, where there would be a five mph exceedence.



Location	Existing	Alternatives 7 & 7a	Project
1	7	7	7
2	10	9	8
3	7	7	7
4	7	7	7
5	7	7	9
6	7	9	12
7	8	11	9
8	10	14	12
9	11	11	16
10	7	8	9
11	7	7	8
12	8	9	11
13	11	12	11
14	11	11	10
15	10	9	9
16	8	9	11
17	11	11	12
18	11	12	7
19	11	12	12
20	10	10	11
21	12	11	12
22	9	10	10
23	8	9	9
24	7	6*	-
25	5	7*	-
26	11	10	11
27	9	9	9

* The sitting area comfort criterion would be seven mph at these proposed open space areas. The comfort criterion is and/or would be 11 mph at all other locations.

0 FEET 100

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FIGURE G-1
LOCATIONS FOR WIND SPEED MEASUREMENTS

SOURCE: Environmental Science Associates, Inc.

Alternative Seven would cause wind speeds to increase at 12 of the 27 test locations, to remain the same at 10 locations, and to decrease at 5 locations. Winds within sidewalk areas would exceed the 11 mph comfort criterion for pedestrian areas at four locations (one location on Clementina Street by three mph and three locations on Folsom Street by one mph). At the two test locations within sitting areas created by the project (locations 24 and 25), winds would satisfy the seven mph comfort criterion.

NOTES - Wind Study Methodology

/1/ Equivalent mean wind speed is defined as the mean wind, multiplied by the quantity (one plus three times the turbulence intensity) divided by 1.45.

/2/ Arens, E., "Designing for acceptable wind environment," Transactions Engineering Journal, ASCE 107, No. TE2, p. 127-141, 1981.

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